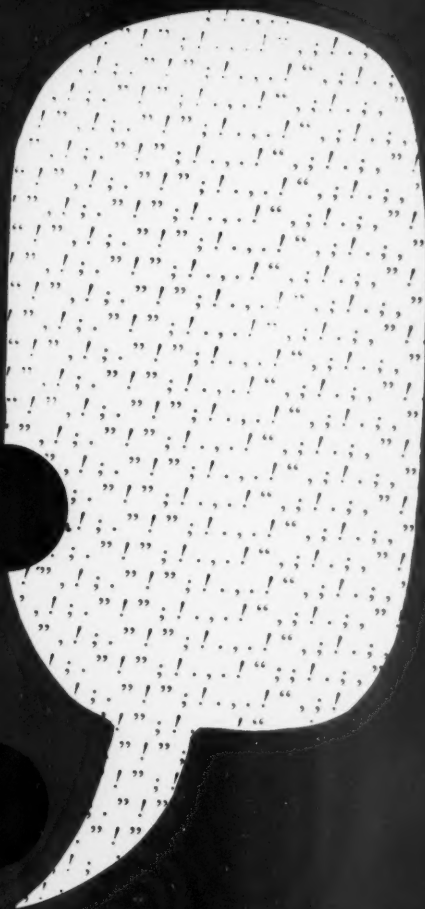


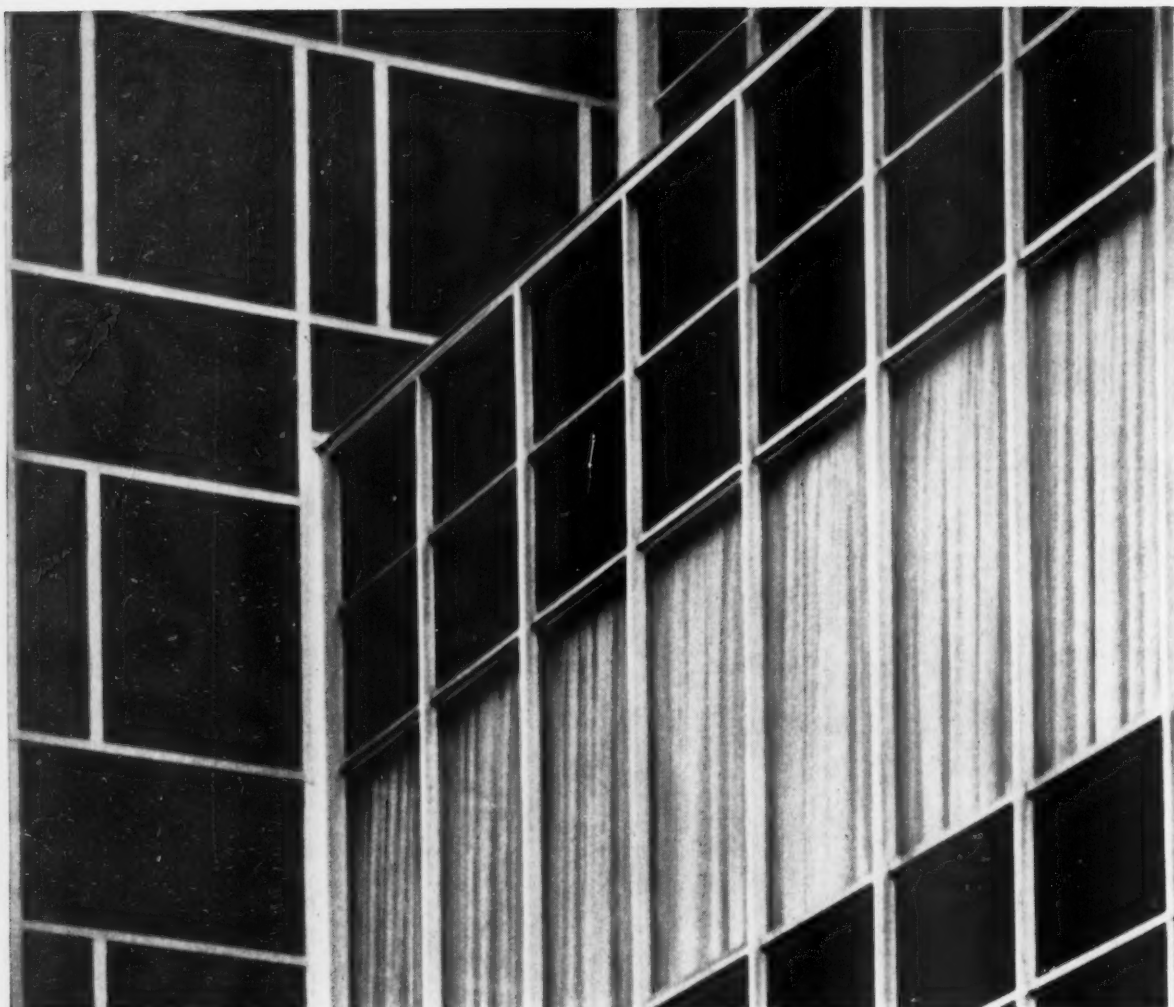
ARCHITECTURAL & ENGINEERING

NEWS



3

MARCH 1959 VOLUME ONE



CURTAIN WALL panels faced with Weldwood Glasweld and used as opaque glazing—a new concept in permanent exterior color. Weldwood Glasweld panels answer the need for a flat, economical, and highly durable facing.

GLASWELD—a colorfast inorganic panel to inspire fresh ideas in building design

Here is an attractive solution to the problems of beauty, durability, and economy in building design. Weldwood Glasweld is a completely inorganic exterior-grade steam-cured reinforced asbestos panel with a permanent all-mineral enameled surface. It is *guaranteed* colorfast, fully weatherproof, and incombustible. An effective moisture barrier, it will not rot or warp, is easy to keep clean, has a high strength/weight ratio, and has high resistance to chemicals and abrasion.

Suitable for exterior use such as fascia panel components, soffits, and canopy ceilings, Glasweld has countless interior possibilities, as well. Bathroom walls, fixed and movable partitions, wainscoting, kitchen counter tops and sliding cabinet doors, and dinette tops

of Glasweld suggest just a few of its uses. Select from its variety of patterns and more than 30 standard colors.

Weldwood Glasweld in 48" x 96" panels comes in stock thicknesses: 1/8", 3/16", 1/4", and 5/16". Prices and delivery on special sizes and thicknesses on request. For specifications and installation data, mail the coupon.

Free new Glasweld booklet

United States Plywood Corporation
Dept. AEN3-59, 55 W. 44th St., New York 36, N. Y.

Please send me the new data booklet, "Weldwood Glasweld" (#1914).

Name.....

Firm.....

Address.....

City.....Zone.....State.....

 **WELDWOOD® GLASWELD®**
Product of United States Plywood Corporation

Circle 1 for further information

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This month's cover by Bob Gill interprets the use of perforations in acoustical materials to combat the problems of unwanted sound—noise. Its control is gaining new importance because of the lightweight and other construction characteristics of contemporary architecture.

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forecast

REINFORCED PLASTICS INDUSTRY

The annual market study of the reinforced plastics industry shows record sales of 185 million pounds in 1958. This represents a 10 per cent increase over the previous year according to the Reinforced Plastics Division of the Society of the Plastics Industry, Inc.

Significant new uses are being reported daily. The building industry today absorbs approximately 25 per cent of the gross production of this area of the plastics industry.

Predictions being made by industry spokesmen are that if the current rate of acceptance of plastics in construction prevails, the annual sales level of \$2 billion would be reached in 1966.

The producers' marketing interests do not necessarily correlate with the specific professional interests of the architect and the consulting engineer. However, each year experiences new developments and genuine progress in architectural and engineering applications for this dynamic phase of chemistry.

1958 volume use

Of the 185 million pounds of reinforced plastics estimated to have been sold during the first nine months of 1958, resins accounted for 99 million pounds, reinforcement for 62 million pounds, and fillers, pigments, activators, etc., for 24 million pounds. The percentages of the uses of the type of resin and reinforcement vary according to performance demanded for the finished product.

Polyesters are still the dominant resin. However, the industry's survey made evident the growing role of epoxies in tanks, ducts, pipe, electrical panels, floor surfacing uses and other related architectural uses; phenolic resins and acrylics found their way into electrical parts and sheeting and paneling respectively. The only major price change during 1958 was a 20 per cent reduction in epoxy resin prices, according to the industry's report.

Fibrous glass still dominates as the material used for reinforcement. However, the number of products using asbestos, where high temperature re-

sistance is needed, continue to grow. Synthetic fabrics, sisal, metal and paper are other means of reinforcement used by the industry.

Construction uses

Architectural applications and related construction uses continued to show significant gains.

Sales of reinforced plastics panels are reported to have increased 25 per cent during 1958 for a total of from 57 to 62 million square feet. Panels, in fact, account for almost all of the 31,450,000 pounds estimated to have gone into the construction market last year and are expected to be the major architectural use for these materials for some time to come.

The industry survey reveals a number of new developments. Reinforced plastic-covered plywood for heavy duty or sanitary service, reinforced plastic-covered steel for corrosion resistance and reinforced plastic-covered pulp boards for decorative applications are growing uses.

Other developments in building application are in sheathing, simulating the appearance of brick and stone. Work is also being done on covering special sections of wood, such as window sills, treated to look like stone or wood. A number of companies expressed the belief that such combination products offer a promising market.

The A/E NEWS editorial staff questions the practice of simulating natural stone or wood textures, except for the most obvious "decorative treatment." Imitations of other natural materials, in the past, have not easily found their way into *architecturally-detailed and/or specified construction*. Architects, however, alert they may be to new developments, shy away from materials whose aesthetic appearance they cannot control by personal choice or are difficult to integrate easily into a larger compositional-architecturally created-frame-work. This design criterion dominates contemporary professional architectural practice and in all likelihood will probably continue to remain so.

Continued improvement was made in the quality of panels, encompassing greater uniformity of color and thickness and greater resistance to outdoor weathering. The industry also reported improvement in its distribution organization and marketing methods, thereby creating greater localized interest in plastic uses.

Flat and corrugated panels still represent the bulk of the volume of reinforced plastics that go into structural and semi-structural building.

Standards

Standards, which consider both performance and appearance have been developed by the industry in cooperation with the Plastics Section of the National Bureau of Standards of the Commerce Department. The standards cover two types of corrugated reinforced panels: (1) general purpose type I, and (2) fire retardant type II. Dimensional and quality requirements are identical for the two types; they differ in rate of burning and resistance to weathering.

These commercial standards, including loading strengths, translucency ranges, color uniformity, dimensional tolerances and fire-endurance rates, have been adopted by the established producers of the plastics industry.

Electrical industry uses

A figure of 7.4 million pounds for reinforced plastics electrical applications in 1958 is considered conservative.

Impressive gains for plastics were established for all manner of standard electrical pieces. One factor explaining the growth of this market is the progressively improving cost and performance picture. A number of new fibrous glass reinforced polyester molding materials and premixes were introduced which, while lower in cost, offered improved properties. Reinforced epoxies also play an important part in the electrical producers' market. In this connection, industry opinion was expressed that the future outlook for combinations of epoxy resins and paper was excellent.

gazette

Professor Constantin P. Yaglou, Harvard University School of Public Health, 17th recipient of F. Paul Anderson Medal, highest award of ASHAE, in recognition of 30 years of distinguished teaching and research.

Messrs. Stephen F. Voorhees, FAIA, and Ralph Walker, FAIA, both Past-Presidents of the AIA, announce their retirement as senior partners in the New York architectural practice of Voorhees Walker Smith Smith and Haines which will continue under this name. Voorhees and Walker will continue to function as consultants to the firm.

Grade of Fellow conferred by Council of ASHAE on the following: ASHAE Past-President Merrill F. Blankin, Philadelphia; ASHAE Director of Research Burgess H. Jennings, Cleveland; Professor Richard C. Jordan, Minneapolis; and Professor Benjamin H. Spurlock, Jr., Boulder, Colo.

The National Institute for Architectural Education announces the election to its Board of Trustees: Esmond Shaw, Joseph Judge, Jose A. Fernandez, Daniel Schwartzman, Lathrop Douglas, B. Sumner Gruzen, Caleb Hornbostel and Alfred Easton Poor. Continuing trustees are: Giogio Cavaglieri, Arthur S. Douglass, Jr., Sidney L. Katz and Otto Teegen. Professor Shaw serves as Chairman. All are architects in New York City.

Messrs. A. Raymond Von Brock, AIA, Thomas A. Norton, Carrell S. McNulty, Jr., and Gray Taylor, AIA, have become partners in the practice of the architectural firm of Sherwood, Mills and Smith, 65 Broad Street, Stamford, Conn.

Borice Boris, Olive Emslie, John Gilchrist and John Kerr appointed associates to the architectural firm of Victor Gruen Associates, Beverly Hills, Calif.

Benjamin Gray, appointed General Partner of DeLeuw, Cather, and Brill, New York City Architects and Engineers.

H. Herbert Lilien and Clarence Lilien and Sons, Architects and Engineers announce their new office location at 1841 Broadway, New York 23, N. Y.

Marvin G. Sturgeon, Ventura county director of public works for past three years, named a vice-president of Charles Luckman Associates, Henry Duque, Attorney, elected to Board of Directors of this planning-architectural-engineering firm of Los Angeles and New York.

William H. Scheick, AIA, to Vice-President, Timber Engineering Co., Washington, D. C.

C. E. Mauk and F. E. Van Sickle, Associated Consulting Electrical Engineers, announce their new office location at 704 South Spring St., Los Angeles 14, Calif.

Edward D. Lenker, AIA, announces new office address as 1800 Market St., Harrisburg, Pa.



Aerial view of a portion of Campanelli Brothers' Brookfield development in Brockton, Mass. Photo Eastern Aerial Surveys, Inc., Boston.

Radiant Heat with Anaconda Copper Tube provides superior value in Brookfield Homes



Paul DiNunno (right), plumbing and heating contractor for Brookfield Homes, reviews a radiant panel heating layout with Edward A. J. Poskus (center), the architectural consultant for Campanelli Brothers, and George Benham, sales representative of The American Brass Company.

One of the outstanding housing projects currently under way in New England is "Brookfield," Brockton, Mass., planned and being constructed by Campanelli Brothers of Brockton. The price range is \$12,600 to \$17,000.

Top value at lowest cost is the aim of the Campanelli firm. All homes, for example, have radiant panel heating systems using copper tube. And, of course, copper tube is also used for all water lines.

The plumbing and heating contractor for the development is DiNunno Inc., of Brockton. Paul DiNunno, president, says: "The plumbing and heating specifications for 'Brookfield' require the very best of workmanship and materials. I can control our workmanship, but not the quality of materials—and that's why I use Anaconda tube. I know I can depend on every length and coil being of the highest quality. I have used about 350,000 feet on this job to date, purchased from your distributor, the Corcoran Supply Co. of Brockton, Inc."

Try Anaconda on your next job and you will see why Paul DiNunno chose Anaconda. Anaconda Copper Tube is available in all standard wall thicknesses—Types K, L, M and DWV (Copper Drainage Tube)—through your plumbing wholesaler. There is also a complete line of Anaconda solder-joint fittings for every kind of plumbing installation.

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ae news



American Exhibition in Moscow (story at right)



Recent radio-telephone inter-continental Architectural Symposium linking North and South Americas brought together above architects as principals (from left): Carl Koch, MIT professor; I. M. Pei, New York; John Noble Richards, AIA President; Alvaro Oretaga, Bogota, Columbia; and Leonard J. Currie VPI architectural dept. head.

Sydney Opera House in Exhibit (story right)



A corner of America

The United States Information Agency has released a description of the American exhibition to be held this summer in Moscow's Sokolniki Park. Under terms of a reciprocal agreement permitting the Soviets to stage a scientific and cultural exhibit in New York City's Coliseum, the American National Exhibition will be seen by Moscovites for six weeks.

In the foreground is the science building, housed in a 200-foot diameter, anodized gold geodesic dome. Cultural and technological exhibits will occupy the fan-like building behind the dome, and an amphitheater to the rear is for the performing arts. Films will be shown on a "Circarama" screen in the round structure to the left, and a snack bar is being planned at the right. Kaiser Aluminum and Chemical Corporation are the fabricators of the dome. The architect is Welton Becket and Associates of Los Angeles.

Architecture and imagery

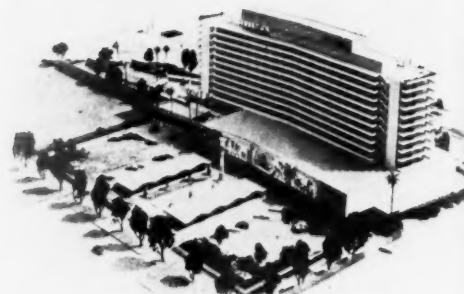
Four new buildings are illustrated in a display of scale models, enlarged photographs and original drawings in the current exhibition, "Architecture and Imagery—Four New Buildings," at the Museum of Modern Art, New York City. The buildings shown are the TWA terminal at Idlewild Airport by Eero Saarinen Associates, an Australian Opera House by the Danish architect Jørn Utson, a church in Connecticut by Harrison & Abramovitz, and a church in France by Guillaume Gillet. The exhibition will be held through April 19.



New H&A project for Manhattan's Third Avenue (story below)

New York skyscraper

Plans to build a 41-story skyscraper in New York City have been announced by Galbreath-Ruffin Realty Co., Inc. The \$25 million structure will be located on the east side of Third Ave. between 40th and 41st Sts. The central mass of the building will be placed back from the street and will rise without setbacks for 41 stories from the street. The building is scheduled for completion in the spring of 1961. Architects are Harrison and Abramovitz, and contractor is the Turner Construction Co.



Nile-Hilton Hotel for Cairo

Hilton hotels abroad

The Nile Hilton in Cairo, Egypt, the ninth of Hilton International's expanding network of world wide hotels, was opened to the public on February 25. The \$6.5 million hotel is located on the banks of the Nile River at the head of Cairo's Kasr El Nil bridge. The use of structural materials and fittings from many countries contribute to the international character of the hotel. The hotel was designed by Welton Becket and Associates, Architects of Los Angeles.

Ground-breaking ceremonies held February 6 marked the start of construction of another Hilton hotel abroad—the Trinidad Hilton in Port-of-Spain, Trinidad, W. I. The \$5.5 million hotel is scheduled for completion the winter of 1960-61. Architects for the hotel are Warner, Burns, Toan and Lunde, New York; associate architects, Toro-Ferrer, San Juan, Puerto Rico, and W. H. Watkins and Partners, Port-of-Spain, Trinidad.

A Medal For Mies

Queen Elizabeth has awarded the 1959 Royal Gold Medal for Architecture to Ludwig Mies van der Rohe, Architect of Chicago, the Royal Institute of British Architects announced recently.

The award to Mies van der Rohe, the seventh American architect to win it, was made on recommendation of the RIBA.

The 72-year-old German born winner is director of the School of Archi-

ture at the Illinois Institute of Technology. The architect was co-designer with Philip Johnson of New York's recently completed Seagram building, which "many critics regard as his masterpiece," the RIBA officials stated.

The Royal Gold Medal for Architecture was initiated by Queen Victoria in 1848.

ASHAE/ASRE merger

Members of the two societies have voted for the merger of the American Society of Heating and Air-Conditioning Engineers and the American Society of Refrigerating Engineers. The consolidated society will be named the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Products registry service

The American Institute of Architects has officially launched the *Building Products Registry Service*, a new reference service to building products and equipment available to AIA members at a nominal subscription fee. The first register, which will include 18 product and equipment categories, is scheduled for distribution by mid-June. The register will serve as a national clearing house on product use for practicing architects. Headquarters of the AIA Building Products Registry Services are at The Octagon, 1735 New York Ave., N. W., Washington, D. C.

Solar energy study

BRI reports that the College of Engineering of New York University has begun a study by its solar energy group with the objective of preparing solar energy transmitting and heating insulating structures for use in buildings and solar heat collectors. The central problem is that solar heat collectors must be protected against heat loss by use of a structure that transmits the maximum amount of solar radiation. Cellular structures have

been prepared using inexpensive materials and methods, which may result in improved panels for the walls of buildings and for numerous other applications. The research is sponsored by The Dow Chemical Co.

Annual design competition

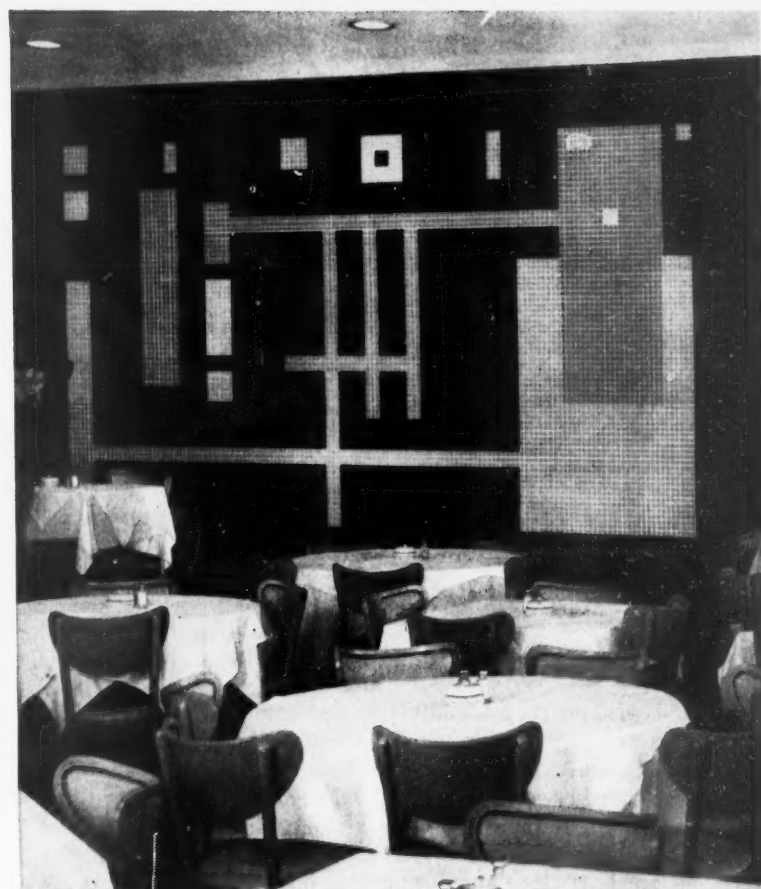
Registration for the \$25,000 annual design competition sponsored by Mastic Tile Corporation of America is open up to May 15, 1959. Registered architects, architectural assistants to registered architects, and undergraduates of member or associate member schools of the Collegiate Schools of Architecture are eligible. The problem deals with "Tract Housing." Submissions will be judged by a distinguished jury. A. Gordon Lorimer, AIA, is professional advisor. Entry forms are available from Mastic Tile Corp. of America, P.O. Box 128, Vails Gate, N. Y.

ASCE growth

Reflecting the accelerated national emphasis on science and engineering, membership in the country's oldest professional engineering organization, the 106-year old American Society of Civil Engineers, increased to an unprecedented 41,377 in fiscal 1958. This was an increase of 1,354 over 1957. The roster of the professional society has been growing substantially since the end of World War II, when the enrollment was about 21,000.

There were 111 technical sessions at the Society's three national conventions, with 450 authors presenting new information for discussion. The papers reported advances in knowledge and techniques in all of the 14 technical divisions. Many of these papers will find their way into the technical journals of the Society, which in 1958 published 446 such papers. The results of a recent ASCE survey indicate an increase in the number of registered engineers. Of the 21,000 engineers replying to the survey, 79 per cent indicated that they held professional engineering

(Continued on page 34)



New Scored Tile* Creates Striking Effects

The interesting wall treatment shown here from Dranek's Astorhurst Restaurant is a good example of the striking decorative effects possible with American-Olean's new Scored Tile.

These smart scored designs add an exciting new dimension to the decorative versatility of ceramic tile.

Made in more than sixty colors, in three surface textures and four scored designs—they permit a virtually limitless variety of distinctive color and design treatments for walls and floors.

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For other examples of Scored Tile's decorative possibilities and full information write for Booklet 1020.

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THE ROCKMAKERS:

subsident foundations
in the Campanile—the
famed leaning tower
of Pisa plagued its 12th
century architects.

Today, applied chemistry
plays a dynamic role in
engineering foundations.

Soil solidification to
stop settlement by chem-
ical injections has been
used. One proprietary
method, the European
"2-shot Joosten" proc-
ess is reported here.



The old wisdom that a chain is as strong and serviceable as its weakest link can also be applied to the relation between a modern building and its foundation. Only then is a building structurally well designed if its foundation loads are transmitted to the ground in harmony with the sub-soil conditions.

Whether a structure is a skyscraper, a factory, or a housing project, good appropriate building sites are becoming more scarce in our big cities. The solution of the problem of how to improve a given, often doubtful, location to carry safe building loads has become in our time one of the main concerns of the architect and the consulting engineer. The growing importance of the new science of soil mechanics clearly illustrates this need. It has many practical applications: namely, first to establish by standard soil testing methods the characteristics of the given sub-soil, its behaviour under varying load conditions and then to select a custom-designed foundation.

The conventional, time-proven methods and manifold types of foundation supports have marched with the times. Generally they are able to meet the severest demands of often incredible underground

conditions that have grown out of the over-crowded business areas of our giant metropolitan centers. Frequently, there are soil conditions which puzzle the most experienced foundations engineer and builder. These problems are usually connected with unstable soil strata, running sand, sometimes called "quicksand" which defies and deceives the architect and the consulting engineer. As a result, it has often caused severe damage during and after construction of the building.

A generally not too well-known process, to meet these conditions was invented in 1925 by a prominent Dutch mining engineer, Dr. Hugo Joosten. This system has been used to great advantage in Europe and now is being applied under patent in this country under the direction of C. Martin Riedel, Civil Engineer, President of the Chemical Solidification Co. of Chicago and New York.

The system is used to solidify running sand (or loose siliceous deposits and similar porous materials) and to harness "sand boils" in building pits to considerably increase the bearing capacity of sand strata. The petrification takes place after the consecutive injection of two true solutions through suitably

spaced pipes driven into the ground. This method has demonstrated itself as a reliable tool and auxiliary aid in difficult foundation and underpinning work for structures as well as in tunneling, mining and shaft construction.

THE METHOD

Under pumping pressure, two chemical solutions are consecutively injected into the natural ground that is to be "solidified." The first chemical, a silicate of soda solution (waterglass), followed by a reagent, the second chemical, consisting of a strong calcium solution (salt). As soon as both chemicals meet in the ground, the immediate and strong reaction of the salt on the waterglass forms a gel which permanently binds together the sand particles to form a very dense, load-bearing, water-tight mass which can be compared with soft sandstone, depending on the cleanliness of the natural strata. A load-bearing strength of up to 50 tons per square foot is not unusual. The average, practical injection-depth into the ground whether above or below the ground-water level is about 80 feet. Greater depth can be reached but this requires special precautions. The "reach" around the injection pipe



To harden sub-base of Manhattan's new Chase Manhattan Bank Building and Plaza, 300 tons of calcium chloride were utilized. Architects: Skidmore-Owings-Merrill

This
open-web
steel joist
carries
two loads...
structural
and
electrical

The E/C Joist is a Standard Open-Web Steel Joist with an electrical raceway substituted for the conventional top chord. Each E/C Joist has the same load-carrying capacity as a comparable standard joist, and the same load table applies.

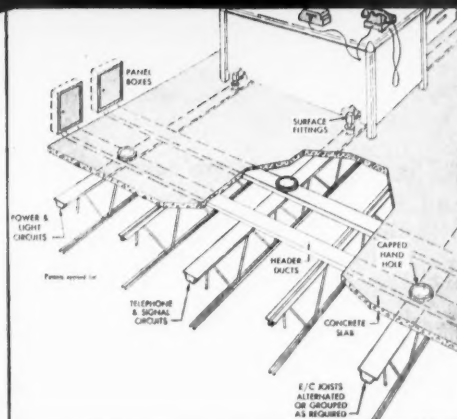
LISTED BY U. L. Ceco E/C Joists are listed by the Underwriters' Laboratories for use with electrical header ducts and accessories manufactured by General Electric, National Electric Products Corporation and Walker Brothers.

as center will cover a diameter from about 24 inches up to 4 feet or more depending upon various factors which generally can be controlled, and depending of course on the porosity and permeability of the natural ground. Careful laboratory tests with soil samples obtained at the site will give definite indications about the most economical solutions of the two chemicals to be used, of the pipe-spacing in the field, and of the hardness to be obtained. A typical spacing of the pipes is about 24-30 inches center to center of injection pipes. If hard clay strata or other natural obstructions are in the way before the solidification area is reached, "casing" of the two inch diameter injection pipes is necessary.

The limitations of the process are mainly governed by clay-silt or loam conditions in the natural strata. Clay and silt cannot be solidified because they have practically no voids which could receive the chemical-gel.

Today, the presence of more than 25% to 30% of clay or silt in the strata to be chemically treated are not considered desirable materials with which to work. In addition, this applies to any sand finer than 140-sieve size mesh. Any material larger than this mesh-size, includ-

(Please turn page)



Electrical, telephone and signal wires can be run from the panel boxes down through the header ducts, into the top chord of the E/C Joist and up through the surface fittings to desks located anywhere on the floor. Whenever desks are moved, surface fittings can be placed along the joists to service the new positions.

Now you can provide Underfloor Electrification Raceways for only 50¢ a square foot—half the cost of the next most economical quality system

As everyone knows, Standard Open-Web Steel Joists carry the structural load with utmost economy. And now, for as little as 50¢ a square foot more, Ceco's *Electro-Channel* Open-Web Steel Joists carry the electrical load, too. Cost is half of the next most economical quality system. Included with the Ceco system are header ducts, hand-holes and markers, installed—as well as the E/C Joist integral raceways. The 50¢ buys a two-duct system on 6' 0" centers. Comparable savings are offered in three-duct systems. Call your Ceco engineer or send coupon for manual. Ceco Steel Products Corporation. Sales offices, warehouses and fabricating plants in principal cities. General offices: 5601 West 26th Street, Chicago 50, Illinois.

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THE ROCKMAKERS

ing fine and coarse gravel, slag cinders, etc., will solidify well.

In the event that the layers constitute very coarse gravel with large voids, engineering recommendations are for cement grouting or intrusion prepack. Injection of the "Joosten" mixtures in the fine cracks and fissures of natural rock, or any cracked honey-combed concrete to improve faulty foundations or bare rock have proven to be very effective in sealing the cracks or rejuvenating the faulty area.

SUPERVISION AND LABOR

As in any construction job, only careful planning and experienced control can bring satisfactory results. A supervising engineer must be capable of interpreting subterranean conditions and should know the limitations of the process to avoid failure.

Site conditions vary from project to project and unexpected problems often occur in work progress. The working crew usually consists of one experienced foreman and four laborers to handle one set of injection equipment. The "pump" keyman and the "pipe" keyman of this crew must be relied upon to have a "feeling" of the soil and how it accepts the chemicals. Engineer Riedel, with his 30 years of experience with the Joosten method, cautions against inexperienced handlers of this process in preparation or execution. The possibilities of failure exist and disappointed clients unknowingly may assess blame for it on the Joosten process itself.

Riedel stresses that, since this is relatively a pioneer, yet-unknown

field, a challenge exists for continuing improvement in the methods, tools and economies of application.

EQUIPMENT REQUIRED

The equipment required is relatively simple:

1. Three air-driven reciprocating, duplex, double-acting pumps with a capacity and pressure sufficient to force chemicals into the ground. A water pump is necessary for jetting, etc.
2. Air hammer and drive-head to drive the pipes into the ground.
3. Necessary lengths of pressure hose, and piping, usually about 1 7/8 inch o.s., in 10 foot lengths with special points or tips on the end.
4. Hydraulically operated pipe-pulling equipment; the jacks should have up to 100 tons capacity to handle long pipes which are usually hard to pull out of the solidified mass.
5. A paddle-type movable mixing outfit for mixing the second chemical freshly at the site. (The first chemical is shipped ready-mixed to the site.)
6. Pipe cleaning equipment and small pipe-fitter's tools.
7. An air compressor: 165 cu. ft. or more, at 95 psi.

ACTUAL JOB APPLICATIONS

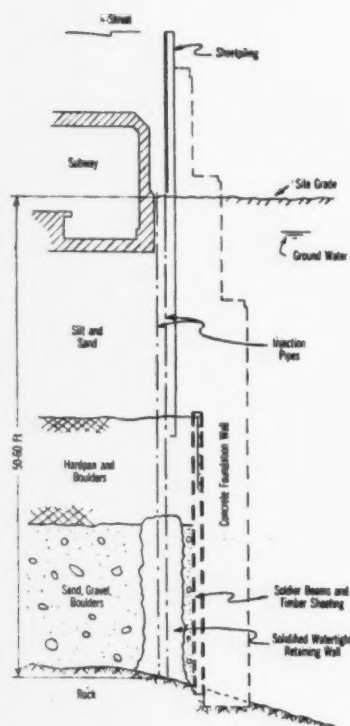
Since 1940, several outstanding projects have utilized this process. Among the most recent and perhaps the most spectacular was the chemical grouting of the foundation conditions of the new 60-story Chase Manhattan Bank headquarters building in downtown New York. The project designed by Skidmore, Owings and Merrill, required the sinking of large foundation cofferdams and the protection

of adjacent building foundation and the IRT subway system tubes immediately adjacent to the property lines. Water bearing stratum existed and a considerable depth of sand and gravel under the hardpan carried a hydrostatic head. The Joosten method was used to consolidate these layers.

Other applications have been done under emergency or endangering conditions. In Hammond, Ind., the method was used for columns which were endangered by underpinning and for a condition of "running sand" through a sump-hole in the freight elevator pit. In Milwaukee, underpinning endangered the excavation of a deep pit for a large concrete vault to be built against an existing old brick foundation wall. Chemical grouting was successfully used here.

COST DATA

As is readily understood, each job is carried out with varying degrees of depth and soil conditions. It is difficult to report an absolute unit price per cubic foot solidified or per linear foot of foundation wall protected and guaranteed against settlement or movement. However, the cost may be compared with the unit price of first rate reinforced concrete—\$60-\$75 per cubic yard in place including form work and stripping, etc. The cost of solidification is given as a range of \$28 to a maximum of \$70. This cost includes engineering services supervision, tests, field crews, equipment rentals, freight and transportation, room and board for key personnel. Whenever deep injection circumstances or local conditions may delay or hamper work, unit cost runs higher.



Section shows solidification process levels for Chase Manhattan Building

editorial

PURSUIT THE APPLE OF GOLDEN

The winter sun stole across the office wall, past the clock and came to rest on our shoulders, bathing us in the drowsy glow of an afternoon daydream. We mused and made notes.

Man, we nobly scribbled, is the most curious of Nature's creatures. Modern historians tell us that he has been on earth for about 500,000 years—exercising this curiosity of his by poking about every nook and cranny of this dear old planet.

We really can't vouch for what went on for the first 495,000 years—but those last 5,000 years, which for the sake of easy reference we call "civilization," have been impressive. As an expression of monumental curiosity, these centuries stagger our wildest flights of imagination.

An heroic classical world, the successively renascent ages of artistic and scientific enlightenment and exploration have been ample evidence of man's endless pursuit of the golden apple.

His intellect has steadily stripped nature of its mysteries and terrors; his affection has clothed this earth with poetic treasures of architecture, music, literature, painting and sculpture.

Man has tunneled the earth, split the atom, conquered time, created television, electronically computed weather, seeded clouds and has also now invented the Information Theory, i.e., to rediscover ways of meaningful contact in human beings—hoping to eliminate heretofore cumbersome human patterns of communication!

At this point, we stirred, almost ready to zip to the moon in a blaze of wonder at the glory of it all.

But being rather comfortably seated, we decided we didn't have the pep to hit a barn roof. Instead, we glumly glanced at the cluttered desk before us, grumbling at the chair-bound, prosaic aspects of our existence—a feeling often shared by architects and engineers of our acquaintance.

Occasionally we gather to indulge a shred of self-pity, feeling that we function with the most advanced techniques of the 19th century.

At this thought, a crocodile-sized tear crept down one cheek and splashed at the clutter of papers before us.

Hastily blotting the stack of materials before us, we discovered that the folks at the AIA, ASCE, BRI, the Armour Research Foundation, the National Bureau of Standards, the American Iron and Steel Institute, ASTM, the American Society for Engineering Education had recently taken precious time to write us about how they were looking ahead in research, and educational and scientific advances in engineering and architecture. They're busy at analog computers for estimating materials fire-endurance, university increases in training 100 per cent more architects, new concepts of glass atomic structures, instant-laminating processes and the creation of new academic branches in Materials Science, to mention a few notions they have on the fire for the next generation or two!

Gulping in guilt, we virtually split our spleen! Our frenzied epistle on how we're not moving fast enough—gone to waste! We got mad at ourselves and decided right there and then, we too had to crash barriers—establish new frontiers—do something BIG!

So, late that afternoon, as the winter sun sneaked away, tip-toeing past the clock, we sat there in the sweet-sweat of inspiration and invented, as our contribution to continuing progress, the *perfect client*!

JJC

The opinion of architects, whose work as planners of schools is distinguished and respected nationally, are given below. The replies are in response to the editor's request for comment concerning the widely-circulated criticism by the well-known American journalist, Dorothy Thompson and by others, in which our architects have been characterized as "promoters" of "palaces" in planning contemporary construction.

Providing barns

Editor:

I believe Miss Thompson has not understood the problem of school buildings—having looked only at the problem of taxes and not worrying about the role school buildings play in the education of our children. In every community in which we have worked, it is almost impossible within the tax dollar to provide a truly adequate environment for the teaching of our children.

Industry spends 1-1/2 to 2 times and often more for office buildings per square foot than is spent on school buildings. Through experience, industry has learned that proper environment benefits everyone. Air conditioning, 50 to 100 foot candles of lighting and good finishes are all considered a must by management and are demanded by the adults who work in office buildings. Yet, because our children have no voice in the kinds of buildings in which they must live, they are given exposed concrete block walls, exposed steel joists, sometimes rooms without windows, and thus are short-changed in every respect because of the unwillingness of the people of the community to pay for anything which will not be of direct benefit. Often, elements basically necessary for good teaching are omitted because the costs of such as conference rooms for individual projects, proper acoustical treatment and lighting.

If office workers in general were given the kind of environment that is forced upon our school children, industry would be hard put to hold their employees. Yet architectural environment or buildings play a really huge part in the gaining of security and happiness for the individual. No, rather than palaces, I am convinced that we are pro-

viding barns for our children. And yet, our children are our hope for the future.

Sincerely,
Minoru Yamasaki
Yamasaki, Leinweber & Associates
Architects & Engineers
Birmingham, Mich.

Improved rapport

Editor:

The recent bandying about of the word "frill" to describe something above and beyond the barest minimum enclosures of space in a building is quite a new development. We would define "frill" as something that could be well left off the improvement of the project. Under this definition, few frills, if any exist today. The cupolas, porticos and marble lobbies of yesterday have disappeared from school construction. In fact, architects and boards of education have worked so hard to eliminate unnecessary items from construction projects, that they have perhaps gone too far and eliminated some things which should have been included to make the school functional and attractive. Every excess inch of corridor width is now argued, every wall finish except the barest, cheapest considered suspect of becoming a "frill"...

Architects are indeed promoting, if we take as a definition of promoting, suggesting new ways of doing something, and new means of providing use for educational tools for our children. Some of these ideas are good and some bad but without new ideas, our school buildings will become static and outmoded. From the architect's point of view, it is the duty of the school board to be receptive to new ideas, and to assist in evaluating them and even trying out some of those that seem to have the most promise, even though they have not been done in nearby districts before. This promotion of new ideas can lead to economy more often than expenditure.

... Rising school building costs are parallel to the rising costs of everything else in our civilization, whether a loaf of bread, a telephone call, a subway ride, or an automobile. It is more accurate to say that the dollar is declining in value rather than that school building costs are rising. In fact, statistics seem to show that school building costs are increasing less in proportion than almost anything else that could be mentioned, as has been clearly pointed out and demonstrated by Finis Engleman, Executive Secretary of the American As-

sociation of School Administrators. The fact that school building costs have actually declined as compared with other rising costs is perhaps due in no small part to the ingenuity of school architects.

... School building budgets are usually established after careful plans have been drawn up, which meet but do not exceed budgets for the school in question. Such budgets must necessarily be slightly above the expected minimum cost of the building because usually contracts cannot be let for several months and it is most awkward and embarrassing if the amount budgeted is exceeded by the amount of the bids. Most boards of education try to make these points very clear to their constituents, to avoid any distortion of the facts.

... The relations between the architect, school board and lay public can be improved. The architect has the school board as his client, and is therefore, answerable to the board directly. He cannot discuss publicly any programs or aspects of the building project unless authorized to do so by the school boards. This reticence on the part of the architect to discuss publicly his client's problems may lead some people mistakenly to believe that the architect and the school boards are "in cahoots" with one another. This situation can be improved by improved communications between the school board and the lay public about building programs and problems, perhaps in the form of a regular periodical, which is circulated to all interested, or perhaps in the form of complete and well-organized presentation of the facts at public meetings. . . .

Sincerely,
The firm of
Sherwood, Mills, & Smith,
Architects
Stamford, Conn.

Firm program

Editor:

... I think Miss Dorothy Thompson is misinformed, and it is unfortunate that such a writer of note suddenly becomes an architectural critic.

I can only speak in detail about schools in Central Texas. Here, bacon, corn, cotton, automobiles, wage rates, and nearly everything you can name has increased to three times plus pre-war costs. At the

same time more functional and better equipped schools have not followed the same curve.

The architects have studied the problems with school boards and physical plant directors and have designed schools for children and have not built monuments to the community. For example, we are just starting the construction of a Senior High School with 137,000 square feet of fire resisting materials costing \$10.17 per square foot. The cheapest "shot gun" houses built out of green wood and no mechanical completeness in this area have that as a going rate.

I cannot defend everybody who claims to be an architect, but it appears Miss Thompson has heard of an area where a severely idealistic school board "hired" a dreamy-eyed boy and Lord knows what can happen.

Good solid architects establish firm programs with their clients and explain the route and the informed client will know when the value is in the project.

I was educated in a frame shack, but thank God my children have not been subjected to such a physical environment.

Some folks ought to travel more before they become authorities.

Cordially
Arthur Fehr, FAIA
Fehr and Granger
Austin, Texas

More for dollar

Editor:

It is unfortunate that the discussion of school architecture is allowed to start off as a defensive answer to the charge of frills, palatial buildings, and other such peripheral questions.

The truth is that school architects have been most concerned with both the fittingness of the school building and the economy of achieving it. They, along with the educators have been constantly analyzing requirements to see that the maximum educational advantage accrues to every building dollar.

New techniques for simplifying the expensive standards of the past have been developed. Ingenious ways have been created to allow flexible uses of space. New equipment has been invented that creates economies in construction and further economies in the multiple use of cafeterias, gymnasiums and auditoria.

It is unfortunate that now, at
(Continued on page 34)

A/E NEWS conference "wrap-up"

Noise is unwanted sound. Practical measures for its control to insure comfortable human environment was the theme of a recent conference by the Building Research Institute. Today's lightweight construction has sharpened interest in the attenuation of sound by the architect and the consulting engineer.

NOISE CONTROL



Lighter weight construction, new types of interior partitions, increased uses of mechanical equipment have evoked a widespread desire by architects, consulting engineers and their clients for more information about noise control in buildings.

The recent Building Research Institute conference on "Noise Control in Buildings" brought together 365 architects, consulting engineers, acoustics experts, builders, building owners and industry representatives as conferees in a two-day forum devoted to a discussion of unwanted sound in contemporary buildings.

A number of experts were heard and a variety of problems were evaluated and several remedial approaches were offered.

A/E NEWS presents a "wrap-up" report, in condensed form, of the leading discussions at this conference and other information pertinent to the problem of sound-transmission attenuation.

Effects on people

Noise is a by-product of many beneficial devices and processes inherent in our high standard of living. Typewriters, telephones, radio and television sets, labor saving devices, grinders, mixers, pulverizers, jet airplanes—to mention a few kinds of noise, are the "warp and woof" of the texture of our daily environment.

Its influence has many direct and indirect effects on people. Direct effects of noise are often the interference with human activity, through creation of a climate of "annoyance," often resulting in legal actions as measures of retaliation or remedy. The indirect effects occur simultaneously with the direct effects to produce a group of single or complex psychological or motor-behavioral responses to unwanted sound.

One of the conferees, Lewis S. Goodfriend, Consulting Engineer in Acoustics, and a leading authority, emphasized the importance of the psychological character of noise on human behavior. "Behavioral changes often occur in individuals at such slow rates that neither they nor their close associates are clearly aware of the magnitude of the change."

Often individual responses to noise have been of such a nature that the complainants have been "tagged" as "cranks" or "troublemakers." An unusual consumption of headache pills

and aspirin by office employees has been ascribed to the phenomenon of noise. While noise, in itself, according to psychologists does not interfere directly with work, it has given rise to a host of emotional stresses, anxieties and apprehensions.

This factor alone in the general matter of health is an important aspect of architecture and community planning. Increasing recognition of this factor is being given by the latest zoning patterns evolving in municipalities throughout the nation. Today, "nuisance" criteria are not being arbitrarily stated (as in the past), but rather performance standards and various scientific systems are being utilized to measure noise effects on human comfort. The most recent and perhaps the most comprehensive official recognition of this problem is contained in the new Zoning Resolution introduced by New York City's Planning Commission based on a two-year study by the architectural firm of Voorhees, Walker, Smith, Smith and Haines. When adopted, the long range effects of this zoning will have a profound influence on the "noise" character and the long-range architectural character of the nation's largest metropolis.

Varying human responses

Many sounds are music to the ears of one person while to another, a distinct source of irritation.

Children at play, outboard motors, or televised sports events heard on someone else's receiver are among these sounds. The child next door who laboriously practices the piano scales may be the source of great parental pride but to a neighbor it may be the touchstone of towering rage. Even relatively quiet and intermittent sounds—a neighbor's barking dog or the sounds of flushed water heard in a living room filled with guests are often sources of annoyance or possible embarrassment.

Obviously, since human responses differ to various classifications of noise, it may seem difficult to measure and create an optimum noise environment.

Over the years, a number of measurement systems have been set up. These tabulations usually show one column with a room function and in an adjacent column, the corresponding sound level for that space. Generally

the measurement systems, by various authors, have stated design objective sound levels for ideal living or listening condition or the "tolerance" threshold by the space's expected occupants. Confusion, often semantic in its origin, has given rise to differing interpretations.

BeraneK studies

The most authoritatively recognized and comprehensive guide to acceptable noise levels is based on the work by Rosenblith, Stevens and Bolt. It has been refined by Leo L. BeraneK for industrial, commercial and residential use. (BeraneK, *Acoustics*, McGraw-Hill Book Co., N.Y.).

The BeraneK study creates NC and NCA curves in chart form. BeraneK and his colleagues have selected a number of values as *design objective* noise levels. The levels are to be measured in the space when it is not occupied. The occupants may or may not make noises of their own. That is under their control.

BeraneK states the objective of the application of the NC and NCA curves:

"The architect or consultant will have to use *his own judgment* in selecting a curve for a particular specification because of the *wide range of attitudes* towards noise and because of *local custom and expectation* in different locations."

The architect or the consulting engineer is left with no specific criteria but rather with a *guide* to the design problems. He becomes the final judge of the adequacy of sound attenuation. The acoustic experts invariably point to the *relative character* of making choices in order to obtain sound control. Building type variations, methods of construction detailing, structural systems, all have a concomitant effect on the over-all design problem. For example, adding 1/4" of additional plaster to a 3/4" thick plaster and metal stud wall does not add even one decibel

to its sound isolation. The addition of resilient clips to the wall system can add ten decibels of isolation in the speech range. A few bends in an unlined ventilating duct do little to limit fan and motor noises. Lining an existing plenum or the addition of a proprietary sound attenuating trap could make the fan and motor noise inaudible.

Role of acoustical engineer

The acoustical engineer can determine noise sources and advise the architect where control is simple and where remedial applications would prove to be adequate for even the most stringent architectural budget. As an expert, he could make recommendations for planning changes in critical areas which could prove to be less costly in over-all sound control than solely by materials or mechanical isolation.

Cost of control

If a client or building owner insists on relaxing design objectives (in sound control) by ten decibels, he may save ten per cent on his initial construction cost but may be unable to keep his rentable spaces occupied. Proper noise abatement may become a critical factor in the investment-return potential of a commercial structure.

In mechanical equipment for buildings, safety factors in the design and rating of duct silencing devices have usually resulted in quieter ventilating systems than often anticipated. Utilization of adequate design objectives are a matter of additional cost. If the owner decides to settle for less sound isolation, he should not try to convince his tenants that they are "cranks": when they complain about noise from adjacent offices.

It is equally foolhardy to provide excellent architectural sound isolation between apartment or office units and then connect them together with poorly isolated air-conditioning ducts and ventilating flues.

Estimating effects

To correctly estimate the effects of noise on people, it is necessary to *study both the noise and the people*. The noise *experience* of the noise *exposed population*, whether they be office workers or apartment dwellers should be determined if possible.

For residential construction, an engineer-oriented sociological history is made: for commercial and industrial construction, work-tasks and communications requirements are studied. Then the marginal and safety factors may be estimated and the NC design objectives applied to a given problem.

Transmitted sound control

One of the specific needs in American architecture is to find the way to satisfy the need for acoustic privacy. The control of transmitted sound over and around partitions and through suspended ceilings seems to emerge as a major problem.

Engineer B. G. Watters of the firm of Bolt, BeraneK and Newman, Inc., in addressing the BRI Noise Control conference, underscored the problem of the lack of *acoustical privacy* in many of today's buildings.

"None of them [the buildings] as far as I know, were purposely built to have poor acoustical privacy. One of the reasons that we sometimes get poor privacy is that we don't know what to ask for."

The need to find more adequate "transmission loss (TL)" measures of walls is stressed. Often conditions and performance rating data obtained under *laboratory testing* prove inadequate when applied under field conditions.

Dr. Watters raised three points as criteria in the provision of sound transmission loss over and around partitions: speech intelligibility, the weight of the wall, and the stiffness of physical properties of walls.

Speech intelligibility

In a recent program for Owens-Corning Fiberglas by Bolt, BeraneK and Newman, the problem of speech privacy was tackled. Some important factors were found to be size and shape of the rooms, and the usage of the rooms. The factor proved to be the *intelligibility of the transmitted speech*. A person will tolerate weak sounds mixed in with other noises in his office or hotel room; however, when the occupant can understand words, his threshold of tolerance is crossed and he is ready to complain.

Physical properties

To satisfy the need for privacy which emerged as a key factor in the Owens-Corning Fiberglas study, two

physical properties of relatively solid walls (hollow masonry block walls) were found to be correlatives to the problem of speech transmission loss. One property is the mass or *weight* of a wall. The other is the *stiffness* of the wall material. Weight is considered important because an impervious wall transmits sound energy by vibrating in response to the sound pressure. When the sound is a loud one, the movement of the wall can be felt with the fingertips. Weight functions to act as an inertia against this motion. When the weight of the wall is doubled, the motion is cut in half and the radiated sound is reduced about half as loud.

Stiffness of the wall, is singled out as another factor. When the wall vibrates, it must also bend, and in bending it behaves like a spring. One might guess that high stiffness makes a wall harder to bend and improve the transmission loss. This was found to be true at the very low sound frequencies.

However, at the intermediate sound frequencies, the stiffness reaction tends to cancel out the reaction of the weight of the wall and a serious reduction of the transmission loss occurs. In most cases, high stiffness is detrimental to high sound isolation. For any particular weight of wall, there is a corresponding value of stiffness which will just permit the full potential of speech privacy to be realized. Any lesser value of stiffness will not improve acoustic privacy in the typical situation. Any value of stiffness which is greater than this critical value will reduce the effectiveness of the wall.

A number of contour charts have been made by the Bolt, BeraneK, and Newman firm plotting the transmission loss factors for a variety of materials. The most interesting implication arising from their tests, is the way the *constant speech privacy contours* [of their findings] *tend to run parallel* to the weight-stiffness curves. In effect, this means that the privacy afforded by a thin wall having *critical stiffness* is just as good, utilizing the same material, for a wall ten times as thick.

Importance of air leaks

Back-to-back wall electrical outlets, openings behind convactor covers, the usual shrinkage cracks are among the many sources of air leaks in walls. The existence of air leakage is con-

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sidered as a serious compromiser of effective sound control.

One testing method is offered. Whenever a new steam line is put into service, it is first pumped full of air and checked for leaks. The solution for the sound leak problem is similar. Before a new room is put into service, pump it full of noise and then check it for leaks. Place a noisy vacuum cleaner in one room and go next door and listen. Leaks will be found in one-tenth of the time it would take to locate them with the eyes. For those who wish to leave amateur status in sound-leak detection, the use of a doctor's stethoscope is considered excellent for noise probing of the air leaks. With the induced noise source, a fairly careful examination will reveal surprising points at which serious air leaks occurs. Often simple grouting and caulking will remedy and effectively improve acoustic privacy.

AC and other equipment

A recognized source of noise is that emanating from the complexities of air conditioning and other mechanical equipment assemblies including machine rooms, ducts, piping and the action of air flow.

An important contribution to the BRI conference were the specific recommendations offered by Alfred L. Jaros, Jr., partner of the New York Consulting Engineering firm of Jaros, Baum and Bolles. Mr. Jaros emphasized the role of specification writing for air conditioning and other mechanical equipment as an important instrument in the control of noise. This affords a means of the "careful definition of responsibility" in construction work, according to Jaros. He stressed the mechanical engineer's responsibility in "warning" the architect of special construction that may be required at various points of the building in order to insure sound attenuation.

A/E NEWS presents below in condensed form some of Mr. Jaros' experienced findings in writing specifications for various conditions:

General clauses re: HVAC

It is important to define *who* will pass on the acceptability of the results. Contractors have objected to such phrases as "no noise audible outside the machine room" as commercially impracticable. Therefore when work

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standards normally required for all types of pumps, refrigerating units, fans, air-reducing valves, sound traps, grilles, registers, motors, foundation details, cooling towers, etc. In this manner the *control* of the architect and the consulting engineer is extended so that the *intended results* are the result of definite *a priori* standards for specified equipment, substitutions and final approvals.

Testing and adjusting

In specifying the final testing and adjusting of the entire mechanical equipment for a building, the *sound levels* are incorporated into the specification in addition to air quantity deliveries, pressures, etc. The *proper* testing and adjustment of air-handling units and systems after completion of the installation is stressed as a measure of sound control. The contract should be required to submit his *method* of testing and the qualifications of the personnel to be used.

Temporary heating

Specifications are to be written so that under *no circumstances* must the *air-handling* system be permitted to be used for temporary heating at times when dirt or rubbish might get into the duct or other parts of the system as a result. Much annoying noise can result from sand or other small articles being propelled around in ductwork. The building must be absolutely broom clean before the system is utilized for temporary heating.

Piping installation

The specification should be written to insure the proper *pitching* of pipes in order to avoid water-hammer or other sources of noise.

Central chilled water plant

The mounting details of a complete compressor-motor cooler-condenser system should be specified for submission by the manufacturer for approval by the architects and the consulting engineers. Installation of such a unit is usually called for on a fabricated steel base with suitable spring vibration-isolators. Usually this is set on a concrete pad at least 4" high over the complete floor area of the equipment. This construction including the necessary bolts and steel inserts are provided by the general contractor. Proper balancing of rotors,

and proper mounting of compressors on vibration absorbing bases is stressed as the most important fact in machine room noise. Controlling a significant amount of noise generated in the machine room will prevent the "carrying" of much of this sound into other parts of the building.

Cooling towers

The tip speeds of a manufacturer's standard induced-draft fans should be specified as to limits. The quietness of cooling tower fans, their dynamic balance, are mentioned as means of minimizing vibration that is carried through the structural system into the building. It should also assist in reducing to a reasonable degree the sound emitted outdoors which could be a source of annoyance to occupants of adjacent buildings.

Water pumps

Some of the worst noise problems, according to Mr. Jaros, have been the ones emanating from pumps operating under high-water "heads." Pump seals, tightened to meet these heads, caused vibration which was carried through connecting pipes, pipe hangers, etc., into the building construction. "Sympathetic vibration" partitions and furring in major ground-floor spaces of restaurants and showrooms proved to be a potent source of annoyance. The proper selection of pumps, the adequate quality of motors, pump-impellers, seals, the proper mounting of pumps and piping connections to eliminate the transmission of vibration are all critical as a method of noise control.

Acoustic guarantees

Specifications relating to under-window air conditioning units should be written so that the manufacturer and the contractor will guarantee specific acoustic performance and unit details information. Sound levels, for guarantee purposes, are to be measured by an approved electronic sound meter whose readings shall be taken at specified distances. The criteria for measurement given here is generalized, but this should be a factor in specification writing.

Sheet metal ductwork

The construction of the duct work (especially in high-pressure and high velocity systems), the types of joints,

methods of bracing and supporting all have a substantial effect on sound level in occupied spaces. Ducts that are too frail (or inadequately braced) may rattle; duct joints that leak may whistle, ducts that are not correctly shaped at turns, splitters, and branches or have badly designed dampers or locations may produce turbulence that will add noise to the incoming air through the ducts. Specifications, in addition to the work of the layout designer, can assist in guarding against these conditions. Streamlined sleeves around hangers passing through ducts are a detail that can be used. Much work is installed with hangers "punched through" the duct. If the hanger happens to be anything else than a round rod, it can set up considerable turbulence and cause extra noise in the duct; leaking (where the holes for the rod pierce the top of the duct) can not only upset the desired air quantities, but cause added noise.

Flexible connections

Flexible connections (of flexible proprietary vinyl or fibrous glass materials) are useful for minimizing the conduction of vibration of noise (from the fan itself) into the metal of the ductwork. This may act as a sounding board and materially increase the sound level carried by the air in the duct.

Sound attenuators

Sound absorbing attenuators are called for by Jaros to be lined with a 2" thick fibrous glass wool covered with glass cloth with all edges similarly bound with glass cloth. Sound attenuators are necessary for present day high velocity systems. There are many proprietary attenuator or sound trap systems. Choices generally are made on the basis of essential economy and performance.

Conference significance

The problems of sound control are complex and are of practical concern to the architect and the consulting engineer. The BRI conference stressed the growing importance of increasing applicable knowledge, in simplified, non-specialized terms. As more and more practitioners learn to control the "noise" character of the elements of their buildings, they take giant steps forward to a more comfortable human environment.

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has been specified to be executed to the satisfaction of the architects and consulting engineers, who shall jointly interpret the meanings of the drawings and specifications, the "no noise" phrasing has been written that the suppression of noise shall be in a manner that will not be objectionable to occupants in the judgement of the architects and engineers.

Drawings and information

Whenever shop drawings are called for, the specification also requires submission of tabulations or graphs giving full information as to the *sound-levels* in addition to dimensional, performance and materials

products, equipment, materials

A/E NEWS offers editorial coverage of manufacturers' recent developments. Inquiry cards for further information face pages 8 and 32.



Longest cast acrylic

MFR'S DESCRIPTION: Wasco Products claims the production of the longest cast acrylic sheets in the world, 144".

USES: designed for exterior curtain walls and other architectural applications in industrial and institutional construction.

SPECS/FEATURES: the 12' lengths also offer possibilities in outdoor sign design. Available widths up to 100" on special quotation. Standard item is 48" x 144" cast acrylic sheet. Three thicknesses: $\frac{1}{8}$ ", $\frac{3}{16}$ " and $\frac{1}{4}$ ". Appearance: clear colorless or white translucent.

AIA file no. 17-A

MFR: WASCO PRODUCTS, INC.
Circle 11 for further information



Prismatic luminaries

MFR'S DESCRIPTION: Holophane Co. announces a new recessed luminaire series, "Holo-flux," designed for installation of continuous luminous runs with no visible metal parts.

USES: commercial and institutional uses where aesthetic effect is important.

SPECS/FEATURES: luminaires designed to accommodate all types of ceiling construction including the inverted "T," "Z" and "H" spline systems finished in ordinary or acoustical plaster. Two construction designs available: (1) lenses with "Prism-Border," the shallow dropped edge of the lens projects light on the ceiling; (2) a flat lens for installation where this type is desired aesthetically. Both have identical performance. Basic 4' unit contains two 2' x 2' injection molded crystal acrylic "Prismalume Controlens" which have completely concealed reinforced ribs that achieve total luminosity over the entire length. Emitted light is controlled by sharp cone prisms. The product is very new and literature not immediately available. However, further detailed engineering information is available.

AIA file no. 31-F-2

MFR: HOLOPHANE CO., INC.
Circle 12 for further information



Vandal-proof faucet

MFR'S DESCRIPTION: Chase "Vandal-Proof Aerators" have application in every washroom open to the public, where pilfering of fixtures and furnishings accounts for a troublesome financial loss each year.

USES: commercial, institutional and public buildings.

SPECS/FEATURES: pilfer-proof aerator is designed so that removal is impossible without special key. Exposed portion consists of an external loose ring that turns freely so that it cannot be unscrewed by hand. Outlet end contains narrow slots that accommodate special key supplied for removing or replacing aerator. Slots too narrow to allow use of a coin or screwdriver for removal. Slots positioned so they are not in view after installation.

AIA file no. 29-J

MFR: CHASE BRASS & COPPER CO.
Circle 13 for further information



Marble curtain wall

MFR'S DESCRIPTION: Architecture's most classic building material, marble, finds itself wed to the contemporary architectural component, the functional curtain wall. This development, known as "Vermarco," is marketed by Vermont Marble Co.

USES: as pre-assembled, modular, curtain wall panel in skeletal frame structures.

SPECS/FEATURES: numerous sizes and shapes available. Typical panel measures 4' x 5'. Twenty marble squares, $\frac{1}{2}$ " thick and 1' square, are permanently bonded to $\frac{1}{8}$ " asbestos cement board which in turn is bonded to rigid insulation and exterior wall panel of cement board. Entire "sandwich" mounted in extruded, anodized aluminum frame which fastens to adjoining panels with carefully detailed systems of tongue-and-groove members and vinyl sealer strips. Weight of panels: less than 10½ lbs./sq. ft. For maintenance freedom, have satin-finish. Mfr states that they are self-caulk-

products, equipment, materials

ing, heat reflecting and resisting. Of concern to architects is danger of bending or buckling in use. Panel is rigid in construction, yet joints permit expansion and contraction for large wall planes. Natural design and color variety offered. Extruded frames can also be made up in various colors for architectural interest. Resistance to extremely high temperatures, imperviousness to moisture, cited as other desirable characteristics.

AIA file no. 17-A

MFR: VERMONT MARBLE CO.

Circle 14 for further information

NEW PLASTICS USES

Squirm-proof seats

MFR'S DESCRIPTION: "Vinyl-foam," a new plastic material for school room seats has just undergone a three-year test period in the Edgelea grade school of Lafayette, Inc.

USES: classroom seats with molded chair pads.

SPECS/FEATURES: Bakelite Co., div. of Union Carbide, developed "Vinylfoam" produced by UCC's "Elastomer" process. The product is claimed to be only synthetic foam capable of being fully molded, contoured and cored in one operation and produced with an integral textured surface. This eliminates an extra covering, a fact that simplifies production of cushions, thereby reducing cost. Prior to this installation, hard wooden seats were standard in school, and as many will recall, uncomfortable. The three-year test measured degree of comfort and durability of plastic material and its suitability of application. Although chairs are subject to hard classroom use, condition of the pads at end of three years is reported to be good. Other advantages claimed are material's ability to be molded to shape and colored. Resists chemicals and perspiration and can be easily

cleaned with mild detergents. Green in this application, among the other three produced colors, proved to be most practical in the test. This color showed less dirt, therefore required less maintenance.

AIA file no. 28-A-2/5

MFR: UNION CARBIDE PLASTICS CO., DIV. OF UNION CARBIDE CORP.

Circle 15 for further information

Plastic sandwich

MFR'S DESCRIPTION: a translucent building panel, "Sanpan," comprising a fabricated plastic sandwich, is now available from Panel Structures.

USES: numerous exterior and interior architectural and decorative treatments as curtain walls, wall sections, etc.

SPECS/FEATURES: panels are assembled from fiberglass-reinforced polyester skins bonded to heavy extruded aluminum frames and internal grids. Lightweight: 1 1/2"/sq. ft. Panels transmit comfortably diffused illumination and the insulation quality exceeds that of glass block or double-glazed windows, states mfr. Units are rigid and shatterproof. Three types with identical insulating, structural and acoustical properties available: (type A) plastic skin flush with perimeter section for application as curtain walls, interior partitions, roof panels, skylights, and canopies; (type B) integral aluminum lip protecting plastic edge along perimeter; (type C) has protective lip, plus integral joint system for interlocking series of units into rapidly assembled interior partitions or exterior panel systems. Varying color inserts in white, green, blue, rose, yellow and translucent white can be specified. Standard skins are 8 oz./sq. ft. fiberglass-reinforced polyester plastic. Heavier weight or fire-retardant skins, and special decorative designs available in custom units. Widths: 48" in either 8', 10', 12' or 20' heights. Panels resist impact, weathering, and vibration and are unaffected

by temperature and moisture, according to mfr.

AIA file no. 24

MFR: PANEL STRUCTURES, INC.

Circle 16 for further information

Skylight colors

MFR'S DESCRIPTION: skylights in color, made of glass fiber reinforced plastic introduced by Consolidated General Products. Product marketed as the "Consolite Double Dome Skylight."

USES: specialized architectural treatments.

SPECS/FEATURES: twin-domed insulating plastic bubble, fiberglass-reinforced. Dead air space between its inner and outer domes give heat transmission value of only a "U" factor of .5. Insulation value equivalent to 2 1/2" gypsum roof. Double thickness of reinforced plastic cannot be shattered by ordinary hailstorms, rocks, shock or vibration, mfr says. Product also cited as being four times tougher than conventional plastic skylights. Flexural strength: 20 kips psi. Tensile strength: 10 kips psi. Uniform load support: at least 200 lbs/sq. ft. Available in three shapes: square, round and rectangular. Sizes range from 14" square to 38" x 74". Model weights vary from 10 to 55 lbs. Flashing integral with unit, resting flush with top of built-up roofing membrane, and is stripped-in with felt and roofing compound. Thermosetting resins virtually unaffected by normal industrial atmospheric concentrations of acids and alkalis. Retail prices start at \$22.00. Five colors available.

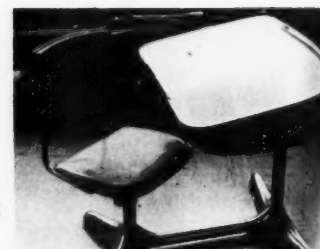
AIA file no. 12-J

MFR: CONSOLIDATED GENERAL PRODUCTS, INC.

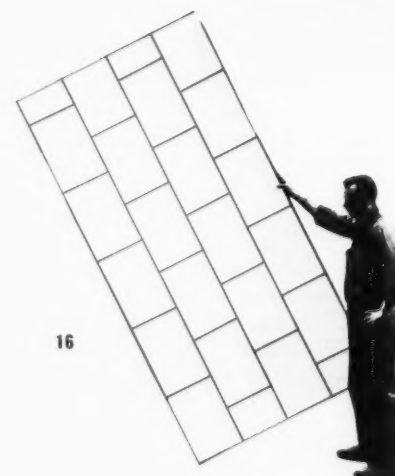
Circle 17 for further information

Chemical roof boards

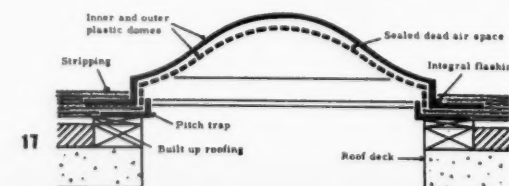
MFR'S DESCRIPTION: a roof insulation, "Roofmate," designed especially for use under built-up



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roofs was introduced today by the Dow Chemical Co.

USES: in built-up-roofing construction.

SPECS/FEATURES: "Roof-mate" consists of expanded polystyrene boards wrapped in laminated kraft paper. Measuring 2' x 4', the boards come in thicknesses of 1", 1½", 1¾" and 2", depending upon the insulating value needed. Priced competitively. Dow claims several outstanding advantages: lowest heat transmission rates of any commercially available insulation. Waterproofness enhances insulating efficiency which will not deteriorate with age. No moisture penetration to weaken material's structural properties. In most cases additional vapor barrier is not required, according to Dow officials. Lightweight: each 1" board weighs approximately 3 lbs. Compressive strength: 3 kips/per sq. ft. For fitting around stacks and chimneys, an ordinary pocket knife can be used. Applied with conventional roofing techniques and is non-toxic and non-irritating to touch. Price schedule and comprehensive architectural and engineering data available. Illustration shows its being placed in built-up roof installation.

AIA file no. 37-B-2

MFR: DOW CHEMICAL CO.
Circle 18 for further information

MISCELLANY

Home steam/sun room

MFR'S DESCRIPTION: "Thermasol" is the first commercial steam and sun room permitting installation to existing bathtub or shower stall units.

USES: finished premises and original construction in home, apartment or office.

SPECS/FEATURES: two types: (1) built-in stalls; (2) corner glass enclosures. Pre-assembled ceiling unit is positioned; electrical plumbing lines are connected. Ceiling unit contains attached switches, sun lamp, air blower, recessed interior light.

Variety of finishes. Models function on 110 v. outlet; 220 v. units optional. Vaporizer delivers temperatures from 70°-115° F and up to 130° F in 20 min. (220 v. unit delivers up to 160° F). Electrical switches fully enclosed and UL approved. Mfr provides one year written warranty.

AIA file no. 22-H-3

MFR: THERMASOL LTD.
Circle 19 for further information

Electronic system

MFR'S DESCRIPTION: Century Lighting introduces "Cent-Trol," an electronic dimmer system with a silicon controlled rectifier weighing less than an oz. and smaller than the diameter of a dime.

USE: Special dimming effects restaurants, nightclubs, or where theatrical lighting effects are required and where control point space is at a premium.

SPECS/FEATURES: illustrated is Century "Console Control." This is controller for the electronic dimming system. Rectifier unit known as "C-Core" has switching speed measured in millionths of a second. Requires no warm-up time; activated by as little as .015 watts; operates instantaneously. Because of circuitry, unit operates quietly and smoothly with none of the radiated heat problems associated with other dimmers, according to mfr. Reduction in weight, size, heat and noise permits dimmer chassis to be located very close to lighting instruments it controls providing a measurable reduction of long and heavy industrial cable runs. Cable size from dimmer chassis to console control is only #18 wire.

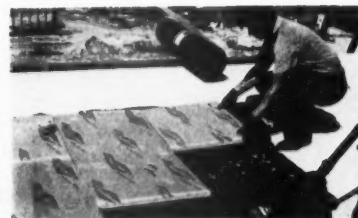
AIA file no. 31-F-15
MFR: CENTURY LIGHTING, INC.
Circle 20 for further information

Ceramic on glass block

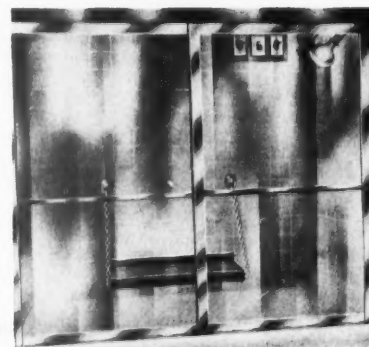
MFR'S DESCRIPTION: a new method of firing a colored ceramic finish on glass block announced by Kimble Glass Co., subsidiary of Owens-Illinois Glass Co.

USES: interior/exterior; wind-break screens, room dividers; complete walls or wall sections.

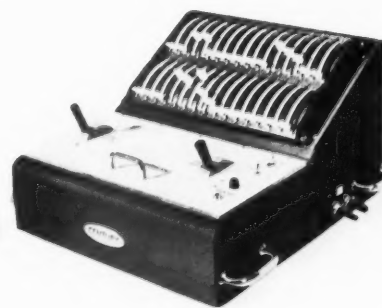
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SPECS/FEATURES: color fired on at extremely high temperature, fusing permanently with face of block. Method used similar to firing ceramic colors on refreshment bottles. Color doesn't chip and is weather resistant, says mfr. Insulation value given as equivalent to 8" masonry wall. Four colors: blue, yellow, green and coral in 6" and 8" sizes.

AIA file no. 10-F

MFR: KIMBLE GLASS CO.
Circle 21 for further information

Prowler-proof window

MFR'S DESCRIPTION: Peterson Window Corp. announces design improvements in its sliding aluminum window model, the "Sapphire."

USES: residential, commercial and institutional construction.

SPECS/FEATURES: "proowler-proof" ventilation provided in locking in a "closed" and two "open" positions. Unlocking and opening from exterior impossible because, short of breaking glass itself, lock cannot be reached from outside. The lock is a concealed plunger operated by a one-half turn of the locking knob.

AIA file no. 35-P

MFR: PETERSON WINDOW CORP.
Circle 22 for further information

Solar calculator

MFR'S DESCRIPTION: a sun position, heat gain and shading calculator is offered to readers of A/E NEWS at a nominal charge by Reflectal Corp.

USES: as a designing and planning tool for architects and engineers.

SPECS/FEATURES: measuring 11 1/2" by 7 1/2", the complete solar data is compiled in a convenient slide-rule chart for immediate reference. Inserts are available for four different latitudes providing readings at any window orientation in any season. The data is authoritative since it is derived from the ASHVE Guide and the Pittsburgh Testing Laboratories. Window orientation, time of day and year, sun altitudes and azimuths, shadow angles and the

products, equipment, materials

time-correction values for 70 leading American cities given. AIA file no. 35-H-4

MFR: REFLECTAL CORP.,
SUBSIDIARY OF BORG-WARNER
Circle 23 for further information

Copper and codes

MFR'S DESCRIPTION: copper plumbing tube "DWV," offered

by Chase Brass & Copper Co., is engineered for use as a low-cost drainage, waste, and vent copper line.

USES: Plumbing systems.

SPECS/FEATURES: use of "DWV" depends upon local plumbing code acceptance. Mfr states that "DWV" is gaining

greater use. Approved by eight state codes and in one city of 10,000 or more population, in 32 states. During past year, 100 code changes accepting copper drainage tubing are reported. FHA approved; survey material on municipal and state acceptance available. AIA file no. 29-B

MFR: CHASE BRASS & COPPER CO.
Circle 24 for further information

SPECIFY **HAWS** FROM A COMPLETE LINEUP OF...

ELECTRIC WATER COOLERS!



Cafeteria Models

Hot & Cold Models

Bottle Types with & without Compartments

Pressure Bubblers with Compartments

Pressure Bubblers

You can specify water coolers for any specific requirement from the complete lineup of HAWS ELECTRIC WATER COOLERS! Pressure bubbler types, bottle-types, freezing compartment models, hot and colds, restaurant and cafeteria models of all sizes, remotes, wall inserts...they're ALL in the HAWS lineup with custom styling and advanced designs that guarantee client satisfaction.

Specify HAWS! Get Complete Water Cooler specification data from one dependable source...write today, for the new 1958 HAWS Catalog!

HAWS DRINKING FAUCET CO.

1441 FOURTH STREET (since 1909) BERKELEY 10, CALIFORNIA

Circle 6 for further information

OFFICE AIDS

Printed acetate sheets

MFR'S DESCRIPTION: "Stanpat" printed, mat-surfaced, acetate-backed sheets with a heat resistant adhesive are ready-to-use, requiring no special equipment.

USES: in drafting room.

SPECS/FEATURES: title blocks, specification boxes, symbols, etc. are printed on ready-to-use acetate sheets. Mfr states that product will not come off tracings (unless desired to do so), will not dry out or wrinkle in stock. Time saving factor stressed as a drafting room economy. Samples available. AIA file no. 35-H-3

MFR: STANPAT
Circle 25 for further information

Lettering templates

MFR'S DESCRIPTION: Keuffel & Esser Co. announces the addition of new templates to its "Le-roy" lettering line.

USES: in drafting room.

SPECS/FEATURES: template listings: (1) Spartan Medium, in type sizes from .24" to 1.44", forms capital letters and numbers that can be drawn solid or in outline form with a 00 or 0 pen; (2) Shadow, in sizes from .12" to .50", forms capital letters and numbers in shadow type; (3) Isometric, in sizes from .10" to .20", forms caps and numbers

sloped for isometric drawings; (4) Standard Lettering Template, new size plate 9½" long, forms .05" capitals in vertical or slanting style. AIA file no. 35-H-3

MFR: KEUFFEL & ESSER CO.
Circle 26 for further information

ELECTRIC EQUIPMENT

Grounding outlet

MFR'S DESCRIPTION: a three-wire grounding outlet #5232 with pressure terminals has been added to the line of electrical wiring devices manufactured by Pass & Seymour, Inc.

USES: residential, commercial and institutional construction.

SPECS/FEATURES: for use with #12 and #14 solid wire. Unit has bronze springs to hold wires securely and prevent loosening from vibration. Bronze contacts with rounded surfaces assure trouble-free insertion and withdrawal of cap blades says mfr. Double-grip contacts are fully enclosed in individual pockets. Built-in slots position wires within outlet body. Wide release slot permits loop wiring to save time and simplify wiring. Unit has recessed gage to indicate length of wire to be stripped and terminals clearly identified for black and white wire. Outlet meets new Federal specification WR-00151b.

AIA file no. 31-D
MFR: PASS & SEYMOUR, INC.
Circle 27 for further information

Dimming ballast

MFR'S DESCRIPTION: a fluorescent dimming ballast with a range of maximum to minimum illumination in a ratio of 500 to 1 is available. For example: 1,000 lumens can be dimmed to 2 lumens.

USES: designed for "Luxtrol" light controls.

SPECS/FEATURES: flickerless

starting at any intensity level with control range possible. Desired lighting level set, after being turned off, can be turned on at same level without control adjustment. Greater wattage or loading control possible (50 per cent).

AIA file no. 31-F-25

MFR: THE SUPERIOR ELECTRIC CO.

Circle 28 for further information

Package dumb waiter

MFR'S DESCRIPTION: "Simplex" electric dumb waiter offered as a complete, low-cost, volume produced, unit suitable for lowering and lifting requirements in various types of buildings.

USES: stores, banks, libraries, residences and other applications where duty is heavier than scope of manually-operated equipment.

SPECS/FEATURES: standard car size: 24" x 24" x 36" high, capacity 200 lbs., speed 35 feet per min. (maximum travel 25', two or three stops). Integral motor (110 v. single phase), gearing and electromagnetic brake on structural steel base. "Duco"-finished steel car. Controller, normal and final limit switches, motor overload protection. Steel guide rails, brackets, steel cable. Momentary push-button operation. (Steel tower and bi-parting doors illustrated, optional.)

AIA file no. 33-D

MFR: SEDGWICK MACHINE WORKS, INC.

Circle 29 for further information

Raceway fittings

MFR'S DESCRIPTION: "Spang" receptacle and telephone service fittings designed for fast installation are offered by National Supply Co.

USES: service for underfloor electrical raceways.

SPECS/FEATURES: sloping back and face plates, each held by single captive screw, meet at top center to enclose fittings and give access to entire enclosed space when removed. Quick terminal connection and one to four-power receptacle accommodation cited.

Fittings are cast aluminum with satin brass or brushed aluminum finishes. Complete data available.

AIA file no. 31-C-71

MFR: THE NATIONAL SUPPLY CO.

Circle 30 for further information

INSULATION

Glass insulation

MFR'S DESCRIPTION: the development of "Stay-Dry," a line of low-cost rigid cellular glass insulation for hot and commercial piping applications, announced by Pittsburgh Corning Corp.

USES: commercial piping insulation.

SPECS/FEATURES: temperature range of 35° to 350° F. Mfr states product is permanently vapor-proof, incombustible, waterproof, dimensionally stable and that it can be installed for approx. the same cost per linear ft. as other commercial pipe insulators. Shipped in 24" lengths. White laminate covering serves as protective jacket and enhances finished appearance. Can be painted with a water-based paint. Nominal thicknesses of 1" and 1½" for steel pipe or copper tubing ranging from ½" to 6" in size.

AIA file no. 37-D-2

MFR: PITTSBURGH CORNING CORP.

Circle 31 for further information

Box-type foil

MFR'S DESCRIPTION: redeveloped "Alfol" aluminum foil reflective insulation features box type end design.

USES: crawl spaces (in areas of low relative humidity), in side-walls where winter temperatures are not extreme and in ceilings or attics in mild areas.

SPECS/FEATURES: design affords end-to-end coverage. Exposed foil layers are backed with heavy kraft or polyethylene lining. Middle layer is unlined aluminum foil. Heavy board stock blanket dividers increase strength and extra rigidity. U-factor efficiency ranges from .11 to .15 based on 0° F and ASHACE standards. Manufac-

tured for 12", 16" or 24" framing centers in continuous length rolls of 500 sq. ft. Other insulation developments described in comprehensive 26-page brochure.

AIA file no. 37-C-3

MFR: REFLECTAL CORP., SUBSIDIARY OF BORG-WARNER CORP.

Circle 32 for further information

Appliance insulation

MFR'S DESCRIPTION: Owens-Corning Fiberglas Corp. announces an improved Fiberglas appliance insulation which permits increased capacity and thinner walls for refrigerators.

USES: designed for refrigerators, water heaters and ranges.

SPECS/FEATURES: increase in thermal efficiency permits refrigerator motors to work less while maintaining correct temperatures, resulting in lower operating cost. The insulation is composed of millions of tiny coiled springs of fibrous glass that press into all voids and against all surfaces. This characteristic gives insulation a snug fit even in most complex contours thus removing "sweating" due to uninsulated spaces. This product may find its usefulness in special insulating problems in architectural construction.

AIA file no. 37

MFR: OWENS-CORNING FIBERGLAS CORP.

Circle 33 for further information

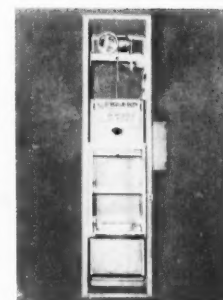
PAINT DEVELOPMENTS

Fire retardant paint

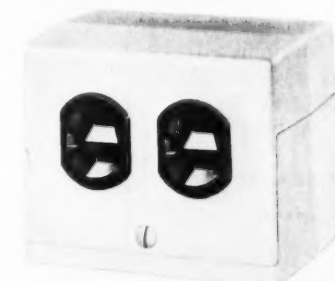
MFR'S DESCRIPTION: Du Pont laboratories have developed a fire retardant paint that is the result of five years of research.

USES: interior wall surfaces and special areas such as stair wells and furnace rooms, and broad residential and commercial use.

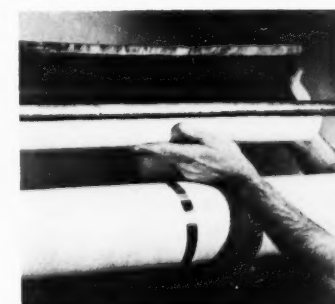
SPECS/FEATURES. Underwriters' Laboratories approved, the new interior flat enamel does not stop fires but slows down the spreading rate. Material is described as totally different from type that foams and forms a spongy insulating layer when



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products, equipment, materials

subjected to heat. Available in seven colors and white. Optimum results obtained in three-coat application by either brush, roller or spray gun on new or unpainted surfaces. To qualify as a fire retardant, a coating must reduce flame spread to 70 or less. Du Pont's fire retardant paint rated at 50 to 70 in UL tests. Material has also passed U.S. Navy thermoelectric tests.

AIA file no. 25-B-28

MFR: E. I. DU PONT DE NEMOURS & CO.

Circle 34 for further information

Heat resistant paint

MFR'S DESCRIPTION: Chem Industrial Co.'s "Extra High" heat resistant paint is available in four colors.

USES: heat lines, condensers, compressors, radiators, etc.

SPECS/FEATURES: "Extra High" coating reputed to be composed of a clear silicone base with special metallic pigment. This combination air dries to a bright finish in approx. 30 min. When heated, paint fuses with applied surface. Colors: aluminum, gold, metallic red and blue. Paint said to resist temperatures up to 1,700° F without flaking, blistering or burning.

AIA file no. 25-B-28

MFR: CHEM INDUSTRIAL CO.

Circle 35 for further information

HVAC

Smokeless burner start

MFR'S DESCRIPTION: the "Custom Mark II" is announced as a significant advance in oil furnace design due to its method of injecting fuel and air into the combustion chamber.

USES: residential and light commercial projects.

SPECS/FEATURES: unit does



CHEMISTRY: new dimension in building products

Compare your choice of building materials today with that of only a decade ago. The difference is made up, for the most part, of the products of chemistry . . . man-made to supplement traditional building materials and to solve building problems that wood, metal, glass or

masonry alone cannot solve. High strength, light weight, easy handling, economy, proved performance . . . these are only a few of the outstanding characteristics that qualify these polychemicals from Dow for careful consideration in your own designs.

SARALOY® 400 . . . NEW ELASTIC FLASHING SOLVES OLD WEATHERPROOFING PROBLEMS

**New material is waterproof,
tough . . .
expands and contracts
with the building**

Here is a brand-new flashing material proven, by years of extensive testing, to have a combination of advantages

never before available. It is Saraloy 400 . . . an elastic, thermoplastic sheet flashing, ideal for every use, particularly where expansion and contraction of building sections can soon destroy the effectiveness of other flashing materials.

Saraloy 400 can be fabricated right on the job site and conformed to any contour quickly and easily. It can be bonded to built-up roof coverings as well as concrete, metal, wood, brick, asbestos-cement, or glass-reinforced

plastics. It can be painted with regular exterior paints. This new flashing won't corrode, check, crack or peel . . . can even be welded to itself chemically to make joints stronger than the sheet.

Excellent outdoor weathering properties and chemical resistance assure long service life with minimum maintenance. For industrial or residential applications, specify Saraloy 400 for the finest flashing material on the market . . . at far less cost per year of service.



SCORBORD® insulation cuts fitting time up to 80%

You can speed construction and cut labor costs and still get permanent insulating efficiency with Scorbord. Lightweight, easy-to-handle boards are clearly pre-scored for snapping off at desired widths instead of cutting or sawing. Scorbord resists water, water vapor, rot and deterioration . . . has no food value for rodents or vermin. The advantages of Scorbord particularly suit it for use along the edges of foundations or under concrete slabs and cavity walls.



STYROFOAM® insulates low-temperature space permanently

Its lasting, low "K" factor and unique combination of most-wanted properties make Styrofoam an unmatched low-temperature space insulation. This very light and rigid insulating material offers high compressive strength and an ideal surface for bonding or plastering. It is unaffected by water or water vapor and won't sustain mold growth. Styrofoam retains its original insulating value permanently, from 170°F. down through sub-zero temperatures. With Styrofoam you can count on more for your insulating dollar.



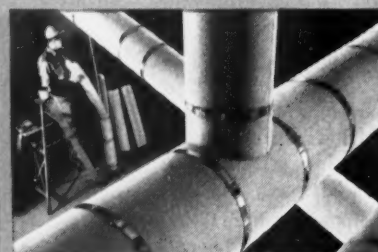
LATEX PAINTS provide stay-fresh beauty on exterior masonry surfaces. Controlled chalking makes them self-cleaning. They're colorful, attractive for years. Dow supplies latex to leading paint manufacturers.



PELASPAN 8 makes an ideal curtain wall insulation. New Dow polystyrene beads can be expanded by manufacturers. Foam made from Pelaspan 8 offers low "K" factor and light weight that mean handling ease.



STYROFOAM keeps cavity walls dry . . . provides all-important vapor seal . . . insulates against extremes in temperature . . . retains its original insulating properties indefinitely for long-term satisfaction.



STYROFOAM stops costly heat gain in low-temperature piping systems . . . prevents condensation and dripping . . . stays trim and effective without maintenance . . . assures top performance at surprisingly low cost.

ANY QUESTIONS?

Detailed information on any or all of these Dow building products is readily available. Write to us on your letterhead and let us help you make the most of these products of chemical research for the construction industry.

Specify DOW BUILDING PRODUCTS for your designs

SARALLOY® 400 • SCORBORD®
STYROFOAM® • PELASPAN® 8
LATEX • ROOFMATE®
POLYFILM®

*TRADEMARK

THE DOW CHEMICAL COMPANY
Midland, Michigan



products, equipment, materials

not use conventional gun-type burner arrangement. Instead, a combustion flow system draws fuel and air through the burner using mechanical draft under precision control. Since unit does not use natural draft, it operates well under any and all chimney conditions, according to mfr. Actually a small exhaust vent to outdoors is required. Burner and controls completely enclosed in steel cabinet finished in baked blue-green enamel. Ten sizes available in either vertical or horizontal designs. Heating capacities: 85,000 through 160,000 BTU/hr for vertical model. Horizontal unit output: 84,000 to 250,000 BTU/hr. All models UL listed and protected by electrical limit safety switch. Competitively priced.

AIA file no. 30-G

MFR: IRON FIREMAN MFG. CO.
Circle 36 for further information

Auxiliary power

MFR'S DESCRIPTION: eight higher capacity Diesel-driven electrical generating plants from 50,000 to 200,000 watts, have been announced by D. W. Onan & Sons Inc.

USES: auxiliary emergency electric power in hospitals, public buildings, heavy-duty installations.

SPECS/FEATURES: these stand-by plants have power capacity to operate essential electrical loads such as automatic heating systems, air conditioners, elevators, communications systems, motors and lights. Each unit is complete, self-contained electric generating set with Diesel engine, alternator, exciter and control panel assembled in one unit. Prime movers up to 150,000 watt capacities are Cummins Diesel Engine. In the two larger sizes, 175KW and 200KW, the driving engines are Waukesha Diesel units. Individual features of each

products, equipment, materials

unit vary according to specifications, all models of both Diesel engines operate at 1800 RPM. Optional accessories including automatic line transfers available for each model. Delivery approx. 120 days.

AIA file no. 31-G-2

MFR: D. W. ONAN & SONS, INC.
Circle 37 for further information

Heat pump

MFR'S DESCRIPTION: using only electric power, Revco claims low initial installation costs, quiet and economical operation for a new heat pump designed to provide winter heating and summer cooling.

USES: residential and commercial establishments.

SPECS/FEATURES: operates on principal of reverse refrigerant flow. Refrigerant as vehicle for heat transfer considered most efficient method of use of electricity for heating. Heat pump is basically an air-conditioning (cooling) plant. System responds to thermostatic control. Two sizes of heat pumps: HP-32 (32,000 BTU) and HP-36 (36,000 BTU), cooling ratings. Five HP size (62,000 BTU) is under design. Mfr has field tested in various U.S. climatic conditions.

AIA file no. 30-C-5

MFR: REVCO, INC.
Circle 38 for further information

Sprayed coil dehumidifier

MFR'S DESCRIPTION: a line of low pressure and high pressure blow-through sprayed coil dehumidifiers is now available from American-Standard.

USES: for medium and high velocity all-air systems in multi-story buildings.

SPECS/FEATURES: 127 sizes available in capacity ranges from 2310 to 45,900 CFM and for operation to 9" w.g. static pressure. Heavy duty units feature casing designed to provide air and

water-tight unit for all zoned systems. Direct expansion or chilled water coils available. Sprayed coil dehumidifiers designed to permit convenient removal of coil units for maintenance or service. Separate section at air entering end contains inlet louvers having removable blades. Louvers prevent spray from backlashing when system air passes through bypass duct or hot deck above unit.

AIA file no. 30-D-5

MFR: AMERICAN-STANDARD
Circle 39 for further information

Gas/oil furnaces

MFR'S DESCRIPTION: a line of eight gas and oil winter air conditioners incorporating new design and color changes announced by the Thatcher Furnace Co.

USES: heating requirements ranging from 100,000 to 224,000 BTU input capacities.

SPECS/FEATURES: all units compactly designed with warm air blowers positioned under heat exchanger, making possible minimum cabinet height. Combustion chamber made of spun refractory fibers for low heat conductivity, lightweightness and sound absorption. Cabinets finished in baked enamel—metallic blue and gold-bronze colors. For servicing, front panels removable.

AIA file no. 30-G

MFR: THATCHER FURNACE CO.
Circle 40 for further information

Fan equipment

MFR'S DESCRIPTION: incorporating an advanced airfoil, backward curved blade design, the type "AF Dynafoil Fan" is announced by the Clarage Fan Co.

USES: fan particularly adaptable to mechanical draft and heavy duty application.

SPECS/FEATURES: mfr states the new fan equipment designed

and built to close tolerance for performance stability and efficiency. "Dynafoil Wheel" built with 12 aerodynamically-shaped blades in combination with contoured inlet for turbulence reduction and quiet operation. Blades of one-piece die formation, welded to rim and backplate. Blade's hollow section reinforced by internal struts.

AIA file no. 30-D-1

MFR: CLARAGE FAN CO.
Circle 41 for further information

Gas vent

MFR'S DESCRIPTION: a double-wall metal gas vent with interlocking joints is announced by Van Packer Co.

USES: for "hard-to-get-at" locations in construction.

SPECS/FEATURES: Underwriters' Laboratories listing. Available in all standard sizes of round pipe from 3" to 20" in diameter. For wall stud space installation 4" and 5" oval sizes available. Design of vent provides space for air movement, developing low wall temperature. Outer wall is heavy-gauge galvanized steel. Inner wall is .016" aluminum, fast heating and resistant to condensate and acid formation. No tools required; assembly by pushing together and locking twist.

AIA file no. 12-N

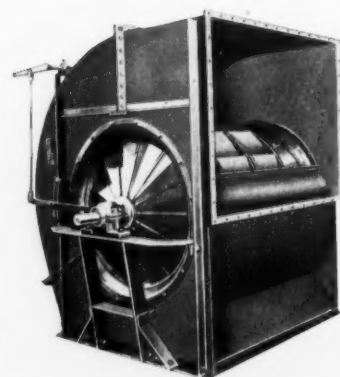
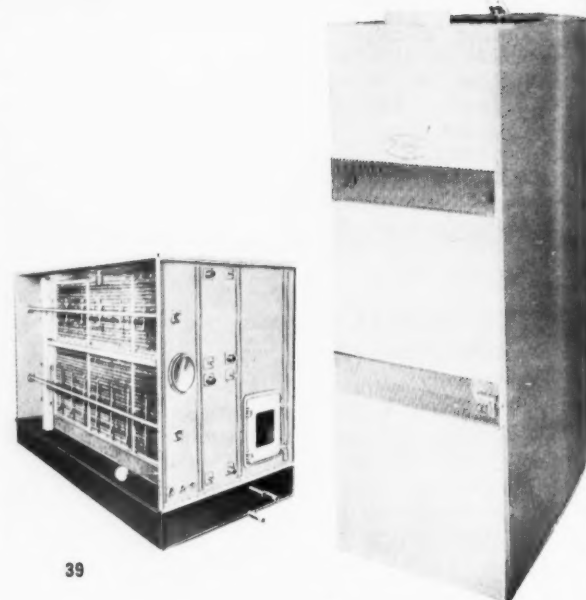
MFR: VAN PACKER CO.
Circle 42 for further information

New capacities

MFR'S DESCRIPTION: the "A-5" oil-fired boiler is designed for oil operation in net installed capacities ranging from 195 MBH to 622 MBH.

USES: large homes and small to medium-size apartment and commercial buildings.

SPECS/FEATURES: tankless heater arrangement in which separate heater may be inserted in each center section. This permits unit to produce multi-temperature domestic hot water.



Only one size tankless heater is required with new boiler, for hot water or steam heat, no matter how many sections it may have. Preassembled copper manifold available for connecting multiple heaters. Unit contains built-in wet base construction permitting unit installation on combustible flooring. Extended waterways beneath combustion area provide additional heat absorbing surface. Controls and burner mounted at front of boiler. Range of eight sizes for hot water or steam and six sizes for boiler-burner units.

AIA file no. 29-D-2

MFR: AMERICAN-STANDARD

Circle 43 for further information

SEALANTS/GROUTS

Plastic weather seal

MFR'S DESCRIPTION: polyethylene channel splines are used on aluminum storm windows for rattle elimination and operational ease. In addition, metal-to-metal contact prevented between movable panel and its frame.

USES: weather seal.

SPECS/FEATURES: low friction characteristics as well as polyethylene material's inherent chemical and physical advantages of moisture resistance, flexibility and imperviousness to atmospheric conditions. Material claimed to eliminate seepage, water leaks, and condensation problems.

AIA file no. 17-J

MFR: UNION CARBIDE PLASTICS CO.

Circle 44 for further information

Non-shrinking grout

MFR'S DESCRIPTION: "Emeri-Grout" introduced as a new non-shrinking grouting material using a form of corundum as a special aggregate (second to diamond on Moh's scale of hardness).

USES: securer, bolt and dowel seating and anchorage of machinery and structural members.

SPECS/FEATURES: ductile for

absorbing vibration. Plastic before setting and is readily worked into restricted space without honeycombing or water pocket formation. Tested at 11 kips/psi compression. Comparative test data of expansion-contraction values available.

AIA file no. 3-1-7

MFR: WALTER MAQUIRE CO., INC.

Circle 45 for further information

PLASTIC DEVELOPMENTS

Plastic floor compound

MFR'S DESCRIPTION: "Meta-crete" is offered as a fast-setting epoxy resin plastic floor compound designed to resist abrasion, chemicals and greases that ruin conventional floor surfaces.

USES: heavy-duty floor areas.

SPECS/FEATURES: sand is mixed with resin coating when a non-skid surface is desirable. Material utilizes Bakelite epoxy resins. Poured in screed coat and then is troweled. Depending on depth, coating costs 75¢ to \$1.00 per/sq. ft. including labor. Compares favorably with industrial tile with inherent strength advantages of epoxy formulation.

AIA file no. 24-A

MFR: AMERICAN META SEAL CORP.

Circle 46 for further information

Vapor barrier

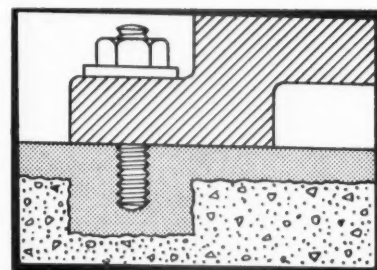
MFR'S DESCRIPTION: Dow Chemical Co.'s recently introduced new polyethylene film, "Polyfilm," is designed for use as moisture barriers in buildings, protective coverings for materials, and as temporary space enclosures.

USES: primary architectural application as vapor barrier.

SPEC/FEATURES: available in thickness of 1½, 2, 4, and 6 mils in all popular installation widths at prevailing industry prices. Of interest to architects is possibility of tear or puncturing during application in order to insure effective barrier. Dow development in dispenser package for product keeps loose end of film ready for



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unwinding and cutting thereby facilitating mechanic's method of handling. Illustrations shows two uses of "Polyfilm." Large sheet being held by workmen will serve as moisture barrier under concrete slab. Window coverings enclose building temporarily during inclement weather.

AIA file no. 24-D

MFR: THE DOW CHEMICAL CO.

Circle 47 for further information

Plastic topping

MFR'S DESCRIPTION: "Armor-Crete" is announced as a monolithic topping composed of thermosetting epoxy resins combined with abrasive-resistant aggregate.

USES: special duty floors and masonry wall surfaces.

SPECS/FEATURES: trowelable mixture is applied like concrete and will adhere without shrinking, cracking or spalling. Integral color requires no hand distribution of color, no hardeners, sealers or maintenance painting. Imperviousness claimed against water damage, caustic chemicals, acids, oils and grease. Mfr has specific and detailed recommendations for conditions of application and also cautions against specific improper uses.

AIA file no. 4-I-1

MFR: PRECO CHEMICAL CORP.

Circle 48 for further information

Plastic/asphalt paving

MFR'S DESCRIPTION: Shell Development Co. announced that its petroleum-derived "Epon" resin has been incorporated with asphalt to create a tough paving concrete.

USES: warehouse floors or road resurfacing where heavy traffic and heavy loading are encountered.

SPECS/FEATURES: first commercial application was made last month at San Francisco International Airport to meet pavement problems created by jet aircraft. Asphalt surfaces there were paved with a ½" overlay of "Epon." The surface withstands high temperature blasts from jet-engine exhausts. Shell testing states that new pavement

products, equipment, materials

combination is flexible, chemical and oil resistant, and able to withstand extremes of temperature. Product can be made in standard hot-mix asphalt plants and applied with conventional paving machines and rollers. Full testing data available. AIA file no. 11-A

MFR: SHELL OIL CO.
Circle 49 for further information

LIGHTING

Troffer/air diffuser

MFR'S DESCRIPTION: a combination ceiling light fixture and low velocity air diffuser marketed under name of "Multi-Vent Troffer."

USES: commercial and institutional buildings.

SPECS/FEATURES: design stated to simplify engineering, lower initial cost and make possible more attractive interiors by combining air diffusion and illumination in same flush-mounted fixture. Advantages cited: complete concealment of air diffuser; permits more aesthetic ceiling appearance, no dirt deposits on adjacent ceiling material; flexibility and freedom of partition movement without relocation or adjustment of air diffusers.

AIA file no. 31-F-2

MFR: THE PYLE-NATIONAL CO.
Circle 50 for further information

Hospital bed lamp

MFR'S DESCRIPTION: bed lamp designed to provide pleasant light from both indirect and direct sources.

USES: in hospital rooms for wall mounting behind patient's bed.

SPECS/FEATURES: as custom-made fixtures, units are available in wide variety of specifications. Mfr recommends following as most practical: aluminum troffer in either satin or baked enamel finish. Colors pos-

sible to match interior scheme. Toggle-bolt mounting to wall. Unit 5" deep. Lengths 5' and 10'. Lamps: 48" rapid start fluorescents used (two in 10' unit; one in 5' unit). Slimlines or standard tubes may be installed in 10' fixtures, medium base socket for small wattage incandescent lamp is mounted for use as night and reading light (15, 25 or 40 watt incandescent lamps for this attachment). Bed lights provided with adjustable arms. AIA file no. 31-F-21

MFR: SIMES CO., INC.
Circle 51 for further information

DECORATIVE USES

"Wood" wallcovering

MFR'S DESCRIPTION: "Hondura" is offered as an addition to the "Viertex" vinyl wallcovering line of L. E. Carpenter.

USES: decorative interior finish.

SPECS/FEATURES: "Hondura" has been designed with a warm wax-line sheen and rich grain of real mahogany states mfr. Emphasis is made that the character of mahogany paneling is achieved, combined with the convenience, durability and washability of vinyl wallcoverings. Durability, practicality in use, permanence, fade resistance, and frayproofness, acid and stain resistance, impermeability to atmosphere and climate, and damp cloth wipe maintenance stressed. Prices and swatches available on this item and other 40 styles in line.

AIA file no. 28-C

MFR: L. E. CARPENTER & CO., INC.
Circle 52 for further information

Vinyl asbestos patterns

MFR'S DESCRIPTION: "Grained Pastels", a new pattern in the "Vina-Lux" vinyl asbestos tile line announced by Azrock Floor Products.

USES: commercial, institutional and residential.

SPECS/FEATURES: line color-

keyed to current trends in wood paneling and furniture finishes, says mfr. Numbers are V-602, Flecked White, green, gray and russet graining on white; V-603, Tundra Tan, white, red, and dark brown on tan; V-605, Mesa Pink, brown and white on salmon pink; V-606, Textured Gray, green, russet, and white on light gray; V-607, Tinted Beige, white and russet brown on beige; V-608, Frosty Mint, white and green on light green; V-610, Ski Slope, black and gray on white; V-611, Maple Tone, russet and gold on white. Pattern distributed through thickness of tile. Available in 9" x 9": size, 1/16" thickness. AIA file no. 23-G

MFR: AZROCK PRODUCTS DIV.
Circle 53 for further information

3-D vinyl tile

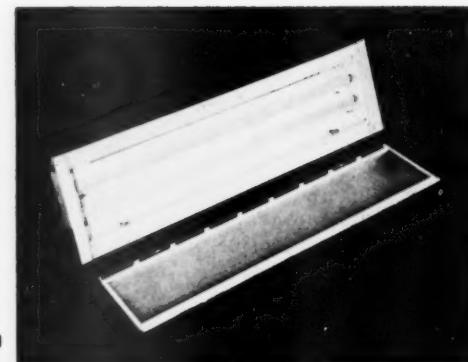
MFR'S DESCRIPTION: Amtico announces a new series of ready-made three-dimensional vinyl flooring in a variety of colors and patterns.

USES: interior decorative floor finishes.

SPECS/FEATURES: among new series of shapes are: beveled "Roman brick," standard brick, hexagons, small or large squares in marbled or plain vinyl or "deluxe" Amtico quality. In 1/8" gauge they combine with stripping in .080 gauge vinyl to give three-dimensional architectural effect to pattern. Matching or contrasting strips added for variety of selection. Width of pre-cut stripping from 1/8" to 1". The various new vinyl tiling developments offered by Amtico create possibilities for many interesting effects. One custom vinyl flooring offered is correlated, matched or repeat of any design motif in wall paper, fabric or trade-mark for reproduction in flooring. Sizes may range from 36" x 36". Full information available.

AIA file no. 23-G

MFR: AMTICO VINYL & RUBBER FLOORINGS
Circle 54 for further information



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THE ANATOMY OF A NEW PROJECT

preview: 3

GRACE UNITED PROTESTANT CHURCH | project/client
WILLIAM M. COOLEY, AIA and ASSOCIATES | architects/engineers
KRALAVOC & BEST | mechanical engineers

Editor's note: The PREVIEW department is designed to provide insight into the overall programming of new projects from small, medium- and large-sized architectural firms. Completed structures are not reported as such. Contemporary architectural practice integrates many professional disciplines. By means of a statistical presentation, we hope to demonstrate the programming and design "common denominators" inherent in every project—in any given cost range.

Program factors affecting architect's solution

This church edifice is now under construction at Somonaul and Shabbona Streets in Park Forest, Illinois. This community, to the south of Chicago, has been described as a "model" suburban town and has been the subject of many studies and surveys. The recent book, "The Organization Man" has made specific references to the work of this church in the community. Founded originally as a Methodist denomination, the church now welcomes its worshippers on a united, non-denominational Protestant basis. The architectural expression of the building is based on this religious consideration and practice. The five foot high seeded terrace, which acts as an elevated base for the entire structure, symbolizes "God's Church above All" according to the Pastor, the Reverend Mr. Robert Crocker, the original and present spiritual leader of the congregation.

Plan elements

The first floor consists of a vestry, chancel, nave, church parlor, narthex, administrative office and minister's office.

Classrooms, a social hall, kitchen and an administrative area are located on the lower level.

General description

The building is "L" shaped with the Church flanked by the narthex and office wing. This wing was planned with expansion in mind, and a Sunday School building will be integrated into the over-all scheme at some future date. Over-all dimension of the structure is 86'-0" x 114'-0".

The church has a surrounding exterior wall of Wisconsin lannon stone, nine feet high, providing a textural contrast of richness and heaviness with the light, modular construction of the large cathedral glass panels and exposed laminated wood construction of the low-scaled office wing.

The steep solid mass of the roof is separated by the stone base by a continuous strip of windows flanking the nave. The gable ends, glazed from the top of the stone to the underside of the roof, rise to a point 42 feet from the nave floor. A cupola, steeple and cross extend above the roof another 28 feet, making the tip of the cross 70 feet above the floor line. This serves as an outstanding landmark in the profile of the suburban city.

The social hall is located directly below the church proper in the basement. However, one side is open to grade, and this side is completely glazed to give ample light to this area for use as a temporary classroom for the Sunday School, thereby eliminating the dark and dingy atmosphere which most sub-grade basements present. Included in the basement area along with the 33' x 80' social hall is a stage, kitchen, storage room, toilets, and boiler room. The social hall and stage will seat 290 persons for church dinners. In the church proper, the nave seats 336 worshippers. The church parlor, located directly behind the nave, will seat an additional 62 as an overflow area. The balcony provides for the choir and additional seating for 42, making the total seating capacity of the church 440. Parking has been provided on the site for 100 cars.

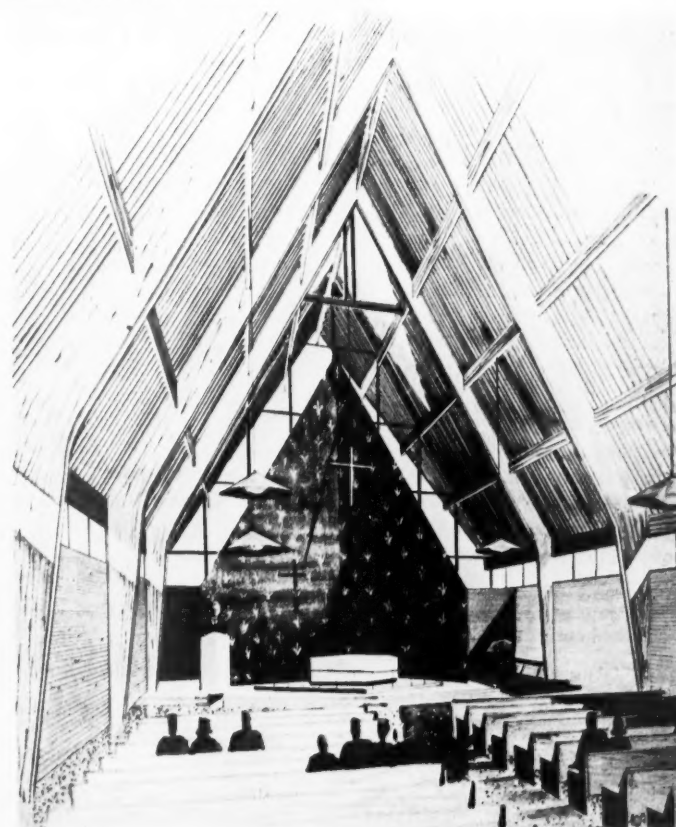
Interior features and finishes

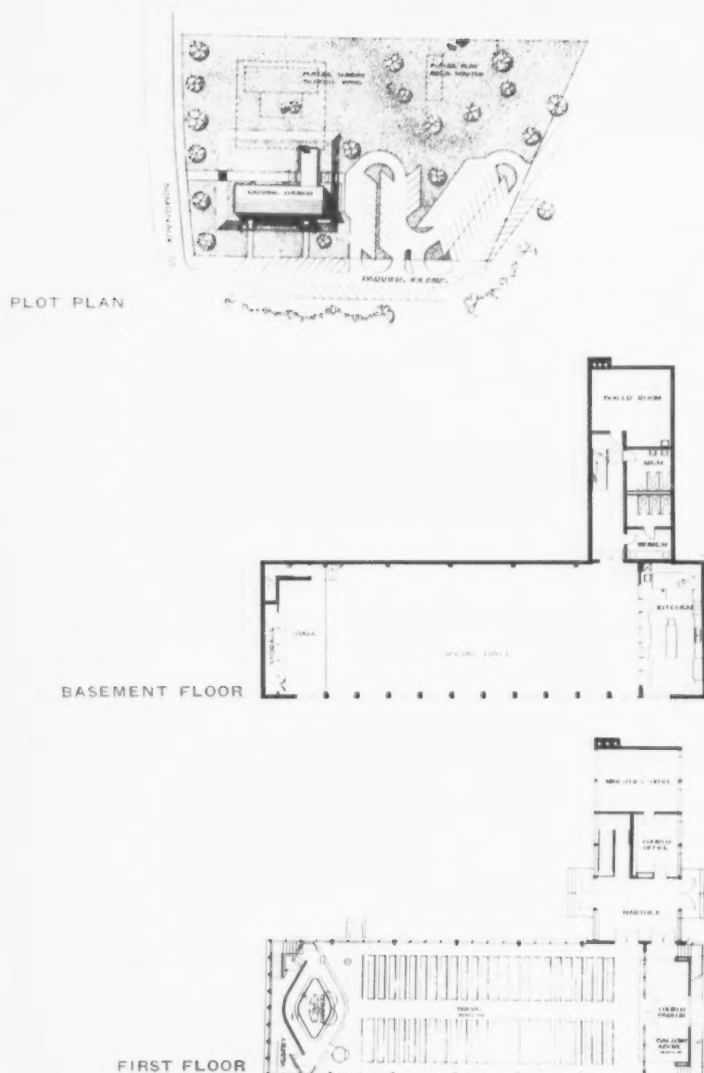
The chancel is backed by a curved 40-foot gold screen designed with a repeated motif of a "fleur-de-lis" pattern. The circular treatment of the chancel is echoed in the detailing of the pulpit, lectern, communion table and font. The architect gave special consideration to the free-standing altar as a focus of the chancel's composition. Surrounded



EXTERIOR PERSPECTIVE (ABOVE)

INTERIOR FACING CHANCEL (BELOW)





by a communion rail, it serves as a symbol of the "gathering around the Lord's table" in the religious observance of the congregation.

Face brick walls, the exposed laminated wood beams, laminated wood arches, and the exposed wood roof decking contribute to an aesthetic expression based on the use of the natural characteristics and appearance of the materials utilized.

The glazing in the church proper is medium gray in color highlighted with small panes of brightly colored cathedral glass.

Finishes in the basement unit are concrete block, face brick and finished concrete flooring.

Structural design information

Entire structure has a poured concrete footing. Foundation walls are of reinforced concrete. Floor system is of precast, prestressed slabs of reinforced concrete. The pre-

cast slabs are channel-shaped, 4'-0" wide, 14" deep and 33'-5" long. The slabs are topped with 2" of concrete. Floor was designed for an occupancy load of 75 lbs./sf.

The roof structure: laminated varying section "Monarch" (proprietary name) wood arches 16 feet on centers. Laminated purlins (5 1/4" x 12'-7/8") are set so that the 2" x 6" tongue and groove V-joint wood deck spans 8'-0". One and a half inches (1 1/2") of rigid insulation covers the wood roof deck with roofer's felt and 250 lbs. asphalt shingles. Roof design load is 25 lb./sf.

The entire church and wing are designed on a four foot (4'-0") module.

Heating design

The heating system is zoned for four areas of control. A two pipe reverse-return hot water system with fin tube standing radiation is utilized. Some forced flow units are used at doors and under large glass areas. An oil-fired hot water boiler (702 MBH capacity) is the heat source.

Other mechanical and heating equipment facilities are:

1. a gas-fired incinerator located in the boiler room
2. toilets and kitchen are mechanically exhausted
3. the nave of the church proper has a propeller exhaust fan (11,000 CFM, 5% HP capacity).

Electrical design

General service: provided by three #500MCM "Versatrol" Geoprene (R), underground cables in a one foot square concrete envelope. A 400 ampere main distribution panel connects to four panel boards. A separate emergency panel controls all emergency and exit lighting.

Interior lighting, illumination levels and controls: In the nave, 14 hanging chandeliers of special design (the architect's), 300 watts directed down-light and 500 watts ceiling directed in each fixture. The up and down lighting is separately switched, connected to dimmer controls for special illumination settings. Chancel is lit by six 300 watt projector type flood lamps. The illumination level for the nave is 25 foot candles.

In the Minister's office and the general church office, egg-crate ceiling mounted fluorescent units are provided. Illumination level is maintained at 75 foot candles. The social hall, toilets, kitchen and all remaining spaces are lit by incandescent fixtures of various types.

Communications systems: a speaker system in the nave, with microphone outlets at the altar, font, and pulpit. Eight speakers in the nave, two in the overflow area, four in the nursery area on the lower level. Projector outlets are connected to the sound system. Provision is made also for hearing aids.

Plumbing design

Sub-soil footing drains are connected to a cast iron settling basin in the boiler room. A 175 gallon per minute, 1 1/2 H.P. bilge pump, designed for a 20 foot head, pumps seepage water to a street storm sewer. Downspout lines attach to tile lines before frost line and empty into storm sewer. All work in the building is cast iron or copper; outside sewers are vitrified.

Sanitary wastes: connected to a 150 gallon per minute, 1 1/2 HP ejector designed for a 20 foot head pressure. Overhead sewer connects to sanitary sewer in street.

Plumbing fixtures: located on lower level. Toilet rooms capacities: Men: 2 WCs, 1 urinal, 2 lavatories; Women: 3 WCs, 2 lavatories. Slop sink in boiler room, drinking fountain in corridor. Kitchen has three stainless steel sinks plus a commercial dish washer.

Costs

Construction cost: \$145,794.00

Cost per square foot: \$16.40

Cost per cubic foot: \$.84

Total gross floor area: 8900 square feet (approx.)

Total gross volume: 175,000 cubic feet (approx.)

literature

Literature cited in this department is available from various manufacturers and associations free of charge. To obtain copies, circle the keyed numbers on the reader service card.

Aluminum forging

Alcoa has just published a booklet describing their aluminum forging facilities as the world's largest and most versatile. The publication discusses, in three well-illustrated sections, the equipment, products, and services of the Alcoa plants which regularly produce aluminum and magnesium forgings. Properties and kinds of aluminum are listed and illustrated. Also included are charts of the performance characteristics and uses of aluminum forging alloys. (36 pp.)

AIA file no. 15-J

MFR: ALUMINUM CO. OF AMERICA
Circle 60 for further information

SSAQ quarterly

The latest issue of the *Stainless Steel Architectural Quarterly* for the construction industry is available. Published by the Committee of Stainless Steel Producers, the booklet presents economic forecasts, data for designing, current standard design practices for the material, and significant architectural details from a current project.

AIA file no. 15-H-1

ASSN: THE COMMITTEE OF STAINLESS STEEL PRODUCERS, AMERICAN IRON AND STEEL INSTITUTE

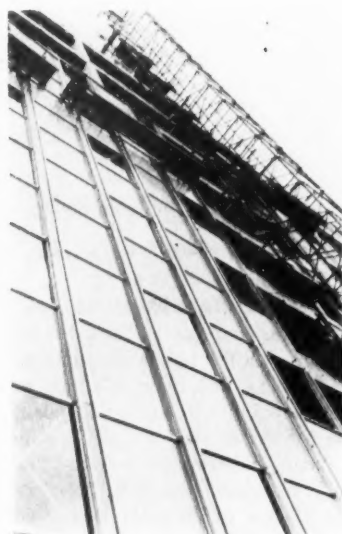
Circle 61 for further information

Movable walls

Case history material is offered by E. F. Hauserman Co. to aid architect in helping client choose between widely different service and installation facilities offered by partition mfrs. The mfr sets up "Ten Basic Guideposts" as criteria in choice: type and cost of system; reusability; national erection crew servicing; maintenance cost; mfr's reliability; decorative variety; design flexibility; wiring and sound-proofing; "ready-to-installness" of system; and lifetime of building service. Costs and actual installation conditions as planned and utilized by architects available. (6 pp.)

AIA file no. 35-H-6

MFR: E. F. HAUSERMAN CO.
Circle 62 for further information



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Institutional presentation

Kawneer has recently issued a handsomely designed brochure, the contents of which state the philosophy of the firm—that building design and its execution constitute a joint research for perfection by the architect and the construction materials fabricator. The literature could perhaps be dismissed as a commercial "soft-sell"; however, the statement recognizes the growing dependence of the architect on shop pre-assembled building units and the demanding nature of the professional's obligation to his client. "Problem solving" for quality fabrication to fulfill contemporary architectural needs is intelligently and effectively discussed. The brochure serves as an interesting and clear-cut policy statement from Kawneer. (16 pp.)

AIA file no. 15

MFR: KAWNEER CO.
Circle 63 for further information

Forum transcript

For those architects and engineers concerned with the greater demands being placed on sealants by new materials and construction methods, the verbatim transcript of the proceedings of a recently held forum on the capability of polysulphide "rubber" compounds to meet new problems is available to readers of A/E NEWS. Among the well-known panel experts present were MIT professor Albert Dietz, Wayne F. Koppes, architect-consultant, and J. R. Panek of Thiokol Chemical Corp. The conference, sponsored by Thiokol, directed itself specifically to the problems of sealants in curtain wall construction. (47 pp.)

AIA file no. 24-A

MFR: THIOKOL CHEMICAL CORP.
Circle 64 for further information

Unitary AC directory

A directory of certified unitary air conditioners is being offered by the Air-Conditioning and Refrigeration Institute in cooperation with the Na-

tional Warm Air Heating and Air Conditioning Assn. The directory, which lists 30 outstanding companies as participating in the program, carries the BTU/hr ratings of the unitary equipment produced by 20 of these. Data on other participating companies will be included in subsequent supplements. The program is based on firm, enforceable contracts, under which the seal of certification may be withdrawn if equipment does not meet the claimed ratings. It is not a "voluntary" program, once a contract to participate has been signed. (24 pp.)

AIA file no. 30-F

ASSN: AIR-CONDITIONING AND REFRIGERATION INSTITUTE
Circle 65 for further information

CURTAIN WALL SYSTEMS

Economy system

Literature on Reynolds Aluminum Economy Wall System describes an assembly wall that provides a one or two-story wall that offers advantages of stock units, yet permits the architect to coordinate aesthetically the Reynolds #101 system with his own design. A variety of stock basic parts enable the architect to utilize the units for a wide variety of building types. Available in 22 colors. There are three basic types with three standard finishes. A fire resistant core is available. All cores act as a vapor barrier. U-factor is .24 or lower, according to mfr. Catalog illustrates construction details, elevation assemblies and includes suggested architectural specifications. (8 pp.)

AIA file no. 17-A

MFR: REYNOLDS METALS CO.
Circle 66 for further information

Aluminum/steel systems

The 1959 Ceco Steel Products Corp. catalog sets forth in a well-organized presentation its aluminum and steel curtain wall systems. The most impressive feature of the descriptive

literature

literature, aside from product presentation and technical content, is a series of fold-out pages of working-drawing size details which permit the designer of an assembly system greater facility in basic sketch studies. Details are given for one and multi-story construction. Mullion and anchorage details as well as head conditions are detailed for both aluminum and steel. Safe limit tables for wind-stresses are given in addition to suggested specifications. (24 pp.)

AIA file no. 17-A

MFR: CECO STEEL PRODUCTS CORP.

Circle 67 for further information

Color/design freedom

The 1959 Kawneer catalog on its wall systems stresses Kawneer's ability, as a curtain wall manufacturer and fabricator, to offer architects complete freedom in choice of any metal, any panel material and any color desired. Four basic and differing wall systems offered: custom metal wall, unit wall, narrow line wall system, and systems for one-story buildings, store or building fronts. Kawneer states it will take complete responsibility for the whole wall and guarantee it. Mfr will detail the wall system, engineer it, fabricate it and glaze it in a single contract offered at a firm base bid. A design checklist is given along with suggested specifications, special engineering information on operable sash and door unit performance, insulating glass and dimensional limitations. (16 pp.)

AIA file no. 17-A

MFR: KAWNEER CO.

Circle 68 for further information

Wood window walls

This 1959 catalog of Andersen Corp. provides a carefully prepared architectural guide to its wood "Windowwalls" units for residential, school, church and light commercial use. A table of contents lists six basic manufactured types of wood window units. Of interest is the "Strutwall," Andersen's structural wall component integrated with window units or door frames. Dimensions, range charts, working-drawing size details are included, and also suggested short-form or detailed architectural specifications. (44 pp.)

AIA file no. 16-L

MFR: ANDERSON CORP.

Circle 69 for further information

CONCRETE

Concrete curing

A brochure is offered by Owens-Corning Fiberglas Corp. describing its new product, Fiberglas concrete curing blankets, designed to protect freshly poured concrete while curing. Contains data on installation procedures and charts on insulation requirements for a variety of conditions. (4 pp.)

AIA file no. 4-C

MFR: OWENS-CORNING FIBERGLAS CORP.

Circle 70 for further information

Column forms

Fiber forms for round columns of concrete are described in Sonoco Construction Products' recent brochure. Seven types of tubular fiber forms are available. Comparison tables for square and round columns are given. Stripping methods, a chart of representative labor-hours for installation and removal, sizes and weights for regular and light walls, strength tests and forming details are also included. Standard specifications and a statement of mfr's guarantee are also provided. (4 pp.)

AIA file no. 4-D

MFR: SONOCO PRODUCTS CO.

Circle 71 for further information

Void formers

Sonoco's "Sonovoid" fiber tubes are described as laminated tubular forms specifically developed to provide an economical method for the forming of voids in precast or cast-in-place concrete. There are two types: type "A", a weather-resistant ply for exposed work and type "B" for protected work. The tubes are used to displace low-working concrete at the neutral axis in the construction of floor slabs, bridge decks, beams, roofs, girders, piles and other concrete members. Isometric sectional views, structural drawings, diagrammatic sections, computation methods, slab design tables (compiled by Fred Severud, well known consulting engineer), a statement of guarantee and standard specifications round out the information in this brochure. (8 pp.)

AIA file no. 4-D

MFR: SONOCO PRODUCTS CO.

Circle 72 for further information

Concrete formwork

This 1959 catalog features Masonite Corp.'s "Presdwood," a hardboard used in forming flat or curved surfaces

of reinforced or massed concrete. The product is used for interior and exterior construction of concrete beams, girders, slabs, walls, columns, foundations and arches. Specific data is given on board sizes, thicknesses, weights, specific gravity, physical properties, sawing and bending radii. A deflection and span data chart is included. Illustrated and detailed are typical concrete forms for four different types of job conditions. Suggested specification included. (8 pp.)

AIA file no. 4-D

MFR: MASONITE CORP.

Circle 73 for further information

Airport concreting

This booklet, offered by Master Builders, discusses problems encountered in concreting of airport pavements and structures. Job story reports cover nine airport projects. Discussion includes the problem of pavement cracking under hot weather placing conditions, 900 psi flexural strength concrete for special arresting gear test center, and the concreting of banked turn-offs for increased runway capacity. (20 pp.)

AIA file no. 4-A

MFR: THE MASTER BUILDERS CO., DIV. OF AMERICAN-MARIETTA CO.

Circle 74 for further information

Insulating concrete

Specifications and applications for the use of "Permalite" insulating concrete for roof decks and floor fills are set forth in new bulletin. Includes specifications for the mixing and application of insulating concrete made with "Permalite" expanded perlite. General characteristics of product discussed. Engineering data charts, fire ratings and floor construction data for product are given. (8 pp.)

AIA file no. 4

MFR: MINING AND MINERAL PRODUCTS DIV., GREAT LAKES CARBON CORP.

Circle 75 for further information

MISCELLANY

Plaster aggregate

Plastering specifications and fireproofing data for "Permalite" plaster aggregate are available in new catalog. Included are mixing instructions and specifications for product covering general provisions, materials, mix proportions and application, finish coat application and limitations. Thirty-eight fire ratings available with "Permalite" aggregate plasters are de-

tailed, including those for structural steel columns, walls and partitions and floors, roofs and ceilings. Contains information on acoustical "Fire-Gard," a premixed acoustical plaster designed for machine spraying direct to the underside of galvanized steel floors. (8 pp.)

AIA file no. 21-C-1

MFR: MINING AND MINERAL PRODUCTS DIV., GREAT LAKES CARBON CORP.

Circle 76 for further information

Oak flooring specs

A specification manual with current revisions for the preparation, laying and finishing of oak flooring is offered by the National Oak Flooring Mfrs. Assn. Grading rules, nailing requirements and conditions of sub-floor construction are detailed and described. Latest revised insert describes screeds-in-mastic method for installation of hardwood strip floors over concrete slabs. (16 pp.)

AIA file no. 19-E-9

ASSN: NATIONAL OAK FLOORING MFRS.

Circle 77 for further information

Ice cream cabinet

An illustrated catalog of stainless steel ice cream cabinets and disherwell units has been issued by Bastian-Blessing. A 30-gal. model has been added to line of remote cabinets, which also include 10, 20, 40 and 60-gal. units. Cabinet tops are made from a single piece of heavy gauge stainless steel with contoured front edge to line up with company's soda units. Catalog contains complete specifications. (4 pp.)

AIA file no. 35-C-3

MFR: THE BASTIAN-BLESSING CO.

Circle 78 for further information

STRUCTURAL UNITS

Acoustical/steel desk system

This 1959 edition of Inland Steel Products describes "Milcor Acousti-deck" as a steel deck system incorporating an engineered acoustical treatment. The acoustical perforations are in the web of the deck, where load-carrying properties are least affected. Heavier gauges need not be used to make up for lost strength. The noise reduction coefficient of .70 for product is considered by mfr to be optimum level for most installations. Literature charts sound absorption data and safe load tables (psi) for steel deck. The installation procedure is illustrated

and discussed. Suggested architect's specifications included. (8 pp.)

AIA file no. 39-B-1

MFR: INLAND STEEL PRODUCTS CO.

Circle 79 for further information

Timber engineering

"Buildings for Tomorrow" through engineering in wood is the theme of Timber Structure's current catalog. Three hinged and barrel arches, laminated beams and purlins, timber trusses, domes, and rigid frames are illustrated by use and drawings. Methods of computation, connections, sizes, dimensions and weights are included with load tables and suggested specifications. (24 pp.)

AIA file no. 19-B-3

MFR: TIMBER STRUCTURES, INC.

Circle 80 for further information

Precast floor/roof system

The 1959 catalog of Flexicore's precast concrete floor and roof system has been released. Included are detail drawings and design data on the Flexicore method of building and revised information on specifications. (8 pp.)

AIA file no. 4-K

MFR: THE FLEXICORE CO., INC.

Circle 81 for further information

ACOUSTICS

Noise controls

Owens-Corning Fiberglas Corp's noise control products catalog presents its complete line of incombustible acoustical materials. Discussed are standards for appearance, performance, permanence, maintenance, fire resistance and sanitary qualities. In addition, the mfr notes the limitations in installation technique; circumstances and conditions of temperature and condensation where the product will not perform. Approved acoustical contractors are recommended. Two page graphic selection guide to various products shown. Textures, surface characteristics, sound absorption coefficients, installation details and specifications are included. Of interest is the discussion labeled "concepts of noise control." (32 pp.)

AIA file No. 39-B

MFR: OWENS-FIBERGLAS CORP.

Circle 82 for further information

Miniscule perforations

The Wood Conversion Co.'s current brochure describes its "Nu-Wood Micro-Perftile" as an acoustical tile in which hundreds of tiny holes are

punched into the tile surface to trap sound. Mfr states that the travertine marble texture enhances the appearance. The fissured pattern is nonrepetitive in application and the noise reduction coefficient is given in the range of .45 to .55. The tile has a class "C" fire-retardant coating (Fed. Spec. SS-A-118b), thus its application possible to commercial as well as residential installations. Joint details, technical data, sound absorption coefficients, application methods and short form architectural specifications are included. (8 pp.)

AIA file No. 39-B

MFR: WOOD CONVERSION CO.

Circle 83 for further information

Metal systems

The 1959 edition of Baldwin-Hill's acoustical products includes descriptive information on its "Panatone" perforated metal acoustical system. This system consists of a sound-absorbing spun mineral wool pad completely enclosed in a flameproof membrane, resting on a metal spacer grid within a 12" x 24" perforated metal pan. Noise reduction coefficient of unit is given as .85. Included is information on other tiles, patterns, edge details, sound absorption coefficients, application methods and specifications. (8 pp.)

AIA file No. 39-B

MFR: BALDWIN-HILL CO.

Circle 84 for further information

Acoustical ceiling design

This guide to acoustical ceiling design covers the essentials necessary to meet good ceiling construction standards. Bulletin was prepared cooperatively by a group of acoustical tile adhesives manufacturers. Simple diagrams and brief captions cover points of chief importance: (1) true sound isolation; (2) low cost partitioning; (3) rated fire protection; (4) easy access to utilities; (5) low cost maintenance. Recommended specifications and construction diagram included. (4 pp.)

AIA file no. 39-B

ASSN: ACOUSTICAL TILE ADHESIVE

MFRS.

Circle 85 for further information

Acoustical data

Elof Hansson offers portfolio of technical data sheets and sales literature related to specific acoustic problems. The literature discusses technical problems of sound transmission and noise control emanating from a variety

of sources: human, mechanical and environmental. Details and planning concepts are given. (26 pp.)

AIA file no. 39-A

MFR: ELOF HANSSON, INC.

Circle 86 for further information

PLASTIC USES

Plastic waterstop

"Nervastral" waterstops are described in recent brochure. Formulated from polyvinyl chloride and high polymer resins, and molded in a variety of lengths and shapes, the product is specifically designed for use as a waterstop and joint spanner between adjacent sections of concrete. It is fabricated as an extruded continuous plastic strip which is flexible, resilient and durable. These characteristics are claimed by the manufacturer based on the inclusion of a table of chemical and physical properties. These charts spell out the ASTM test series and the Federal Specifications under which the product's performance is rated. Dimensions and characteristics of the various types are also given. Isometric detail views complement the brochure by demonstrating various construction joints and details and methods of joining. Methods of installation and specification are included. (4 pp.)

AIA file no. 7-A-1

MFR: RUBBER & PLASTICS

COMPOUND CO., INC.

Circle 87 for further information

Plastic domes

"Wascolite skydomes" for schools, homes and industry are described in recent brochure. Twelve varieties of plastic domical types are discussed, illustrated and detailed: double domes, self-flashing domes, continuous units, vent domes with a motorized air exhaust—are among types covered. Thermal, light transmission and weather resistance properties discussed. Suggested specifications included. (12 pp.)

AIA file no. 12-J

MFR: WASCO PRODUCTS, INC.

Circle 88 for further information

Plastic insulation

"Uni-Crest" is described in recent literature as an extremely lightweight homogeneous white material composed of minute, individually closed cells, produced by expanding beads of polystyrene. Mfr states that the inherent



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82



83

literature

properties of the material make it an excellent insulator for a wide variety of applications in the commercial and residential fields, including perimeter and interior walls, floors, ceilings, doors and panels. Brochure cites characteristics of thermal properties, strength, flexibility, low moisture absorption, bonding, and the low density of 1 lb/cu. ft. A series of specifications, sectional drawings, a table of sizes and physical properties is included. (5 pp.)

AIA file no. 37-A
MFR: UNITED CORK COS.
Circle 89 for further information

Plastic sheet flashing

Brochure is available on "Nervastral Rigid" which is described as a tough, impermeable, homogeneous sheet, composed of a specifically formulated compound containing elements of polyvinyl chloride and other high polymer resins. Designed for flashing applications with a sufficient rigidity to facilitate its preshaping to meet various flashing requirements. Mfr stressed its advantages over metal flashing materials because of inherent physical and chemical properties. Brochure outlines ASTM methods whereby specific properties are given. Cautions on limitations of material use under given conditions. Work methods, isometric detail views of various installations and suggested specifications are also given. (8 pp.)

AIA file no. 7-A-1
MFR: RUBBER & PLASTICS COMPOUND CO., INC.
Circle 90 for further information

FLOORS

Architect's manual

An architectural portfolio on flooring products is offered by B. F. Goodrich Co. It contains a new architect's manual, general catalog reprint from Sweet's, facts on Koroseal vinyl asbestos floor tile, and a folder on molded rubber stair treads. The manual includes a floor tile selection chart with approx. installed costs, applicable Federal Specifications, wearing qualities, characteristics, properties and other information. Special charts show rec-

ommended adhesives, static load data, acoustical properties, and light reflectivity values for various types of the company's floor tile. Information also given for flooring accessories.

AIA file no. 23-G
MFR: B. F. GOODRICH, FLOORING PRODUCTS DIV.
Circle 91 for further information

Flooring products

This 1959 catalog of new Azrock flooring products contains full-color illustrations of complete line. Included are descriptions, conditions of installation, and architectural and Federal specifications on various products. (12 pp.)

AIA file no. 23-G
MFR: AZROCK PRODUCTS DIV.
Circle 92 for further information

HARDWARE

Hardware

A new condensed architectural builders hardware catalog is offered by Sargent and Co. Presented is information on the company's four major lock lines, rectangular and standard liquid type door closers, exit devices and miscellaneous builders hardware. Selection charts, specifications, application data and product features are included. (16 pp.)

AIA file no. 27-B
MFR: SARGENT AND CO.
Circle 93 for further information

Folding door hardware

Kennatrack Corp. presents its series #2300K folding door hardware. The "Kennaloy" steel track supports spring-loaded hangers for folding door installations of 3/4" to 1 3/8" thicknesses. "Kennaloy" is a proprietary name for a "sound-conditioned" steel that has been treated to resist corrosion. The three-hole punched literature provides quarter-size section details, bill of materials for installations and a suggested architectural specification. Other literature available on mfr's sliding and folding door hardware specialties. (2 pp. each file insert)

AIA file no. 27-B
MFR: KENNATRACK CORP.
Circle 94 for further information



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PANELING

Lumber paneling

Ten western pine region species are described and illustrated in the Western Pine Assn.'s current bulletin. Sizes, grades, material stability and patterns are given together with various detail and installation methods. (8 pp.)

AIA file no. 19-E-6
ASSN: WESTERN PINE ASSN.
Circle 95 for further information

Hardboard ideas

A four-color folder of hardboard ideas describes uses of Weyerhaeuser's "Silvatek" line of hardboards in home interiors, for new construction and remodeling. Illustrations cover playrooms, recreation areas, workshops, storage spaces and garages. Product specifications included for all items in line: Standard Weytex, Tempered Weytex, Weytex (a lower density board), Perforated Weytex, and Weybase (floor underlayment). (4 pp.)

AIA file no. 23-L
MFR: WEYERHAEUSER TIMBER CO.
Circle 96 for further information

Wallpanels

A catalog has been released by Marsh Wall Products which illustrates and describes its entire line of Marlite plastic-finished wallpanels. Included are four-foot panels, planks and blocks, Marlite "Peg-Board" and "Korelock," a rigid hollow-core paneling for direct application over framing or furring without backing materials. Marlite's ten "companion colors," seven woodgrains and six marble patterns are illustrated. Installation accessories and moldings are shown. (8 pp.)

AIA file no. 23-L
MFR: MARSH WALL PRODUCTS, INC.
Circle 97 for further information

Exterior panels

Masonite panel products for exterior applications are described in this 1959 guide for architects. A variety of applications for residential and commercial projects are described and illustrated. Basic and special types are graphically presented in chart form describing textures, colors, thicknesses and methods of fabrication and instal-

lation. Architectural specifications are included. (8 pp.)

AIA file no. 90-D-2

MFR: MASONITE CORP.

Circle 93 for further information

Interior panels

Masonite's 1959 catalog provides a guide for architects on the interior applications of basic and special panel types. Literature cites sizes, methods of fabrication, installation and protection as well as architectural specifications. (20 pp.)

AIA file no. 23-L

MFR: MASONITE CORP.

Circle 99 for further information

METAL FINISHES

Louver colors

The 1959 Kawneer Co. brochure on its "K-Louver" units of aluminum walk covers and canopies describes new finish series of nine colors. Various architectural applications shown in sketches and photographs of completed projects. Sizes, ranges, load specification charts, component properties and construction details given. (4 pp.)

AIA file no. 26-D

MFR: KAWNEER CO.

Circle 251 for further information

Aluminum finishes

Catalog offered by Amchem's decorative "alodine" process for finishing aluminum. Manual describes various grades of amorphous phosphate coatings used for decorative finishes for aluminum. Specifications, glare-reducing factors, color ranges and process data chart given. (4 p.)

AIA file no. 15-e

MFR: AMCHEM PRODUCTS, INC.

Circle 252 for further information

SEALERS/BONDS

Tile adhesive

A water-dispersed ceramic tile adhesive, "CTA-50," designed for installation of ceramic wall tile is described in an illustrated catalog of the 3M Co. Listed are performance data and properties of "CTA-50" together with a pictorial application procedure. (4 pp.)

AIA file no. 23-D

MFR: MINNESOTA MINING & MFG. CO.

Circle 253 for further information

Bonding agents

Technical data and a specification file for bonding agents for cementitious materials are offered by Larsen Products Corp. Application procedures, tests and architectural specifications prepared by Larsen's consultant, Ben H. Dyer, AIA. (18 p.)

AIA file no. 21-f

MFR: LARSEN PRODUCTS CORP.

Circle 254 for further information

Adhesives/sealers

Illustrated catalog describing design concepts, typical applications and general characteristics of adhesives, coatings, and sealers is offered by 3M. Catalog covers oil soluble and oil resistant elastomeric adhesives, high strength structural adhesives, protective industrial coatings, and sealers in the form of liquids, semi-liquids and solids. (12 pp.)

AIA file no. 24-A

MFR: MINNESOTA MINING AND MFG. CO.

Circle 255 for further information

LIGHTING

TV/stage lighting control

A brochure describing the use of magnetic amplifiers for stage lighting control in TV and movie studios, theaters, school stages, night clubs, and photographic studios, has been issued by Magnetic Amplifiers. Containing charts, drawings and photo illustrations, the brochure provides basic definitions of the functioning and operation of magnetic amplifier components for easy reference. Typical applications relating to automatic and semi-automatic programmed lighting sequences, and precision light intensity control are covered. Engineering features and a performance specification chart given. Also included are transfer characteristics of magnetic servo amplifiers. (4 pp.)

AIA file no. 31-d-22

MFR: MAGNETIC AMPLIFIERS, INC.

Circle 256 for further information

Lighting guide

The 1959 commercial lighting application guide for offices, schools, banks, office and commercial buildings, stores, displays and hospitals is newly released by the Corning Glass Works. Lighting estimation tables, lens types, glass diffuser types and textures, and luminaire classifications in current

lighting practice are included. Conveniently hole-punched for filing, the two-color brochure in its graphic and photographic presentation is easy-to-read and informative about mfrs products. (20 pp.)

AIA file no. 31-F-237

MFR: CORNING GLASS WORKS

Circle 257 for further information

Fluorescent systems

This 1959 catalog covers highlights of the Smithcraft fluorescent lighting equipment line. Contains condensed data on company's commercial and industrial units, recessed troffers and ceiling systems, and describes the most popular fixtures in each line. (4 pp.)

AIA file no. 31-F-2

MFR: SMITHCRAFT LIGHTING

Circle 258 for further information

Corridor lens

A bulletin on the new heat resistant tempered glass corridor lens has been issued by Corning Glass Works. It covers product data on the #543201 Tempered Corridor Lenslite and the C-201 spectacular Alzak reflector. Together they form a double-function optical system, providing uniform lighting of extended floor areas and supplemental lighting of adjacent sidewall areas. Testing conditions and photometric data are given, along with detailed information on fixture spacing for the most effective illumination on floor and sidewalls. (4 pp.)

AIA file no. 31-F-237

MFR: CORNING GLASS WORKS

Circle 259 for further information

PAINTS

Paint manual for RA's

A complete unabridged Pratt & Lambert architectural specification manual (9th edition) is available to Registered Architects upon request. The manual and current condensed literature contains all essential information for the proper selection and correct specification of paints, varnishes and enamels for all job types and applications to various types of materials. The literature sets forth in chart form a selection guide for the specification. Significant is a guide to specification of paints for residential, commercial and industrial use. This is arranged in an index system with cross reference to previously stated spec standards. Horizontal charts of calibrated color combinations are given as well as a

very comprehensive and descriptive alphabetical directory of 52 of its products. (Condensed specs, 24 pp.)

AIA file no. 25

MFR: PRATT & LAMBERT, INC.

Circle 260 for further information

Painting system

"MorFlek" is described in the Benjamin Moore and Co.'s catalog as a simplified multi-color painting system that is adaptable to all interior surfaces with a minimum of preparation. Regardless of the undersurface, a single priming coat followed by "MorFlek" is the most that is ever required, according to mfr. There is an absence of lacquer solvents, thus minimizing the danger of lifting previously painted undersurfaces. The multi-color paint is a vinyl coating that forms a conventional paint film. Useful chart of five different mfr's equipment given. Very specific conditions for application of equipment discussed. Recommendations made and some applications are not recommended. (5 pp.)

AIA file no. 25

MFR: BENJAMIN MOORE & CO.

Circle 261 for further information

MAINTENANCE

Floor treatment specs

The 1959 edition of recommended floor treatment specifications has been announced by Hillyard Chemical Co. Designed for reference by architects and specification writers, the "short form" specs are arranged according to type of floor. Also available are detailed "long form" contractor specifications for the following types of floors: resilient, wood, gymnasium, terrazzo, concrete, and ceramic tile. These files, furnished to contractors, describe proper initial treatment and subsequent maintenance, thereby virtually eliminating a frequent cause of flooring complaints, say Hillyard technicians. (8 pp.)

AIA file no. 25-G

MFR: HILLYARD CHEMICAL CO.

Circle 262 for further information

Maintenance products

A brochure containing thumbnail descriptions of 21 leading "building savers" for plant maintenance and restoration is available from L. Sonneborn Sons. It covers products designed for floor treatment, waterproofing and damp proofing, roof coating, as well as paints and protective coatings. Con-

literature

tains product specifications, application data, and information on product features. (4 pp.)

AIA file no. 25
MFR: L. SONNEBORN SONS, INC.
Circle 263 for further information

FURNITURE

Contemporary furniture

The 1959 Herman Miller catalog on furniture for the home has just been released. The Miller furniture is designed by George Nelson and Charles Eames and textiles are by Alexander Girard. The work of these architects and designers is well known and is shown off to advantage in the brochure's photographs. An indexing system with line drawings and dimensional and finish data is included. Price lists are available and professional courtesies are extended to registered architects. (24 pp.)

AIA file no. 28-A
MFR: HERMAN MILLER FURNITURE CO.
Circle 264 for further information

School/lab furniture

A new science furniture catalog has been released by Kewaunee Mfg. Co. and its affiliate, Technical Furniture, Inc. Laboratory furniture and equipment is described in detail. Also included are eight science room plans with equipment lists, and mechanical roughing-in details for all items shown. (28 pp.)

AIA file no. 35-E
MFR: KEWAUNEE MFG. CO.
Circle 265 for further information

HVAC APPLICATIONS

Roof ventilators

An illustrated bulletin describing construction features, capacities, quietness levels and accessories of the American Blower centrifugal type roof ventilators is available. Design and construction features of 13 basic ventilator sizes, including 111 different motor and belt-drive combinations, are listed for various building environments. Dimensions of the ventilators

and some of their accessories are listed for all size models. Photographs and specifications of a typical installation included. (8 pp.)

AIA file no. 12-K
MFR: AMERICAN-STANDARD,
AMERICAN BLOWER DIV.
Circle 266 for further information

Perimeter fiber ducts

Sonoco's "Sonoairduct" is described in new brochure. A round, lightweight fiber duct that is aluminum foil lined and wrapped with black, asphalt filled, duplex kraft paper, product is designed for use as supply and return lines in gas and oil fired, slab floor perimeter heating or combination heating and cooling systems. May be adapted for spot cooling and ventilating systems. Mfr states that product meets and exceeds FHA criteria and test requirements for products in this category. Details for perimeter heating, various perimeter systems, installation methods, thermal conductivity charts and a table of sizes and weights are also given. (4 pp.)

AIA file no. 30-B-2
MFR: SONOCO PRODUCTS CO.
Circle 267 for further information

Surface heating guide

Guide offered by GE shows how to select heating equipment and controls for surface heating. Illustrated bulletin tells how to determine type of heater, ratings for surface or platen heating, heat-up time for metallic platens and how to select thermostats and controls for controlling metal surface temperatures. Includes tables for heater selection, heat absorption in kw of material in process, platen heat losses in kw, heat absorption of platen in kw hours, and table for determining thermostat temperature range. (4 pp.)

AIA file no. 31-K-1
MFR: GENERAL ELECTRIC
Circle 268 for further information

Wire shading

The 1959 catalog of Reflectal Corp. states that the use of its "KoolShade," non-corrosive sun-shading screen has reduced heating and cooling loads on major architectural projects, thereby creating significant economy in the use of air conditioning and other mechanical equipment. By shielding approx. 87 per cent of the sun's rays, solar "hot spots" are eliminated and eye-straining glare reduced. Screening permits 67 per cent clear horizontal

visibility and brightness ratios are within recommended IES standards, states mfr. Case studies available. Building illustrated using the shading device is the Texaco building in Los Angeles. Literature includes details, assemblies and specifications. (8 pp.)

AIA file no. 35-P-1
MFR: REFLECTAL CORP., SUBSIDIARY
OF BORG-WARNER CORP.
Circle 269 for further information

ELECTRICAL

Power supply reels

A bulletin has been issued by Appleton Electric Co. on its constant duty type "RL" Reelites. Product designed specifically for lifting or supporting extra-flexible type "SO" rubber jacketed cords for an uninterrupted power supply. Manufactured in both weather-proof and explosion-proof types, each are available in either direct-drive or gear-drive models. Technical data with specification drawings and dimensional tables provided. (4 pp.)

AIA file no. 35-I-1
MFR: APPLETON ELECTRIC CO.
Circle 270 for further information

Electrified baseboard

Engineering data sheet service of the Wiremold Co. releases periodically hole-punched file sheets of case studies of the uses of their various electrical products. Current one illustrates the "Plugmold #2200" baseboard, a combination multi-outlet/electrical wiring system and steel baseboard. Data sheet fittings required, methods of creating bends, job installation and typical layouts. (2 pp.)

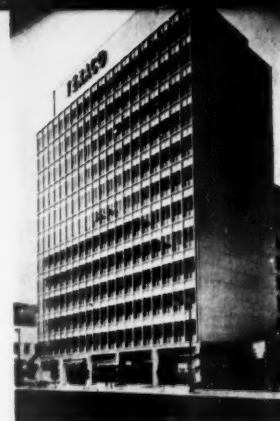
AIA file no. 31-C-62
MFR: THE WIREMOLD CO.
Circle 271 for further information

INSULATION

Pipe insulation

An illustrated brochure describing Fiberglas one-piece pipe insulation for hot and cold water and low pressure steam lines has been released. Included are descriptive material, technical data, and specifications for multi-purpose pipe insulation for hot and cold lines 400° F. to -38° F. (8 pp.)

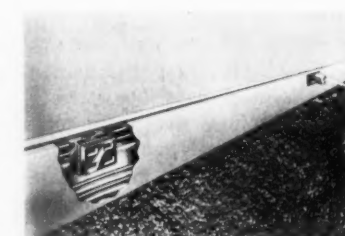
AIA file no. 37-D-2
MFR: OWENS-CORNING FIBERGLAS
CORP.
Circle 272 for further information



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270



271



272

Zip-on jacket

A brochure on "Zip-on Protektinsul" is offered. Product is described by mfr as a unique development in the thermal insulation field for covering pipe and duct insulation. A grey or white colored prefabricated polyvinyl chloride outer jacket is designed to cover and decorate as well as protect the insulation. A closure device seals the jacket in place. Physical and chemical properties of product and fired resistance characteristics listed. Illustrated installations and short form specs included. (4 pp.)

AIA file no. 37-D

MFR: DEVICES DIV., MIRACLE ADHESIVES CORP.

Circle 273 for further information

Poured pipe insulation

A brochure of technical data on "Insul-Fil" describes the product as a poured type pipe insulation used to insulate and protect underground piping carrying steam and condensate, hot water, or chemicals. The data contained in the literature has been authoritatively compiled and presented by Harold R. Sleeper, FAIA. "Insul-Fil," an intimate mix of "Perlite," a highly efficient insulator, and "Atlantite," a manufactured asphaltic resin, is dumped from bags, spaded around pipes and tamped. The empty bags are then placed over the "Insul-Fil" to prevent infiltration of backfill. The technical data and details of various installation conditions are very carefully stated, annotated and graphically depicted. Complete specifications are included. Tables for saturated steam, thermal expansion of pipes, and comparative thermal conductivity values are included. (16 pp.)

AIA file no. 37-D-2

MFR: INSUL-FIL CO., INC.

Circle 274 for further information

DOORS/WINDOWS

Cam action overheads

Barber Colman Co.'s recent brochure describes the "Barcol Overdoors" as offering mechanical improvements over other makes. The specific features stated are the cam action operation, ball bearing rollers, weatherstripping at floor, torsion spring balance, one-piece track bracket and automatic latching and night lock. A flush section unit is described containing a honeycomb core for resistance to weather and moisture. The flush sections carry the mfr's lifetime guaran-

tee against splitting, splintering, delamination or cracking due to natural conditions of weathering. Seven stock designs pictured. (4 pp.)

AIA file no. 16-D-1

MFR: BARBER-COLMAN CO.

Circle 275 for further information

Metal windows/doors

The 1959 edition of Republic Steel Corp.'s, Truscon Div.'s catalog of steel and aluminum windows and hollow metal doors. Illustrations and data given for all types of Truscon metal windows and doors. (12 pp.)

AIA file no. 16-E

MFR: REPUBLIC STEEL CORP., TRUSCON DIV.

Circle 276 for further information

Hollow metal doors

The 1959 edition of CECO Steel Products' catalog of hollow metal doors features doors, frames and hardware as an assembly package for facility of selection, specification and the maintenance of a single source supply responsibility. Well illustrated and detailed, the catalog contains a table of contents which helps in quick reference. Door closers are also included as well as suggested architectural specifications. (32 pp.)

AIA file no. 16-A

MFR: CECO STEEL PRODUCTS CORP.

Circle 277 for further information

Multi-purpose windows

The 1959 Pella catalog features casement, multi-purpose, and its "twinlite" window types. The latter type is an awning-style window detailed with one fixed light and one operating unit. Carefully illustrated, detailed and charted, the catalog also offers specifications. (20 pp.)

AIA file no. 16-L

MFR: ROLSCREEN CO.

Circle 279 for further information

Sliding glass doors

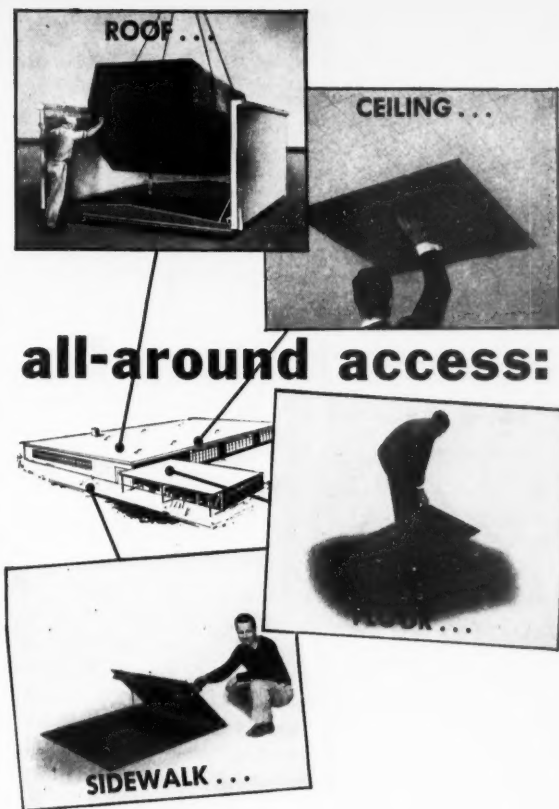
The F. C. Russell Co.'s recent folder describes two sliding glass door lines.

(1) The standard economy sliding glass door units are offered as "budget-conscious" items; and (2) the "deluxe and thermo unit" sliding glass door. Both assemblies are made of extruded aluminum in either anodized or satin finishes. Installation, specifications and construction details given. (4 pp.)

AIA file no. 16-N

MFR: THE F. C. RUSSELL CO.

Circle 279 for further information



... Wherever workmen must go, there is a Bilco door to provide easy access. Choose from a wide range of standard units . . . or select special doors shaped and sized to your precise needs.

Ease of installation, permanent weather-sealing, and rugged construction are all part of the Bilco quality tradition. Exclusive design features include built-in spring operators for effortless lifting of even heavy plate doors. Bilco all-metal doors give you freedom of design, too—they fit and blend with any structure.

Specify Bilco doors...design with Bilco doors in mind...with confidence in Bilco lifetime quality.

See our catalog in Sweet's Architectural & Engineering Files or send for it.

Bilco®	
HORIZONTAL SPRING-OPERATED DOORS	
• The Bilco Co., New Haven Conn., Dept. A13 •	
• Please send me your new catalog on special service doors. •	
• NAME _____ •	
• FIRM _____ •	
• STREET _____ •	
CITY _____	ZONE _____ STATE _____

Circle 8 for further information

ae news

(Continued from page 5)

licenses, compared with 74 per cent recorded in a similar survey five years ago.

Structural sandwiches

Sandwich construction in buildings in terms of its durability and service life, is the subject of ASTM Committee C-19 on Structural Sandwich Constructions. A third "exposure" program will be started in April of this year using test sites at Pennsylvania State University and Kure Beach, N. C.

Progress continues in the development of test methods to evaluate sandwich constructions. The measurement of creep characteristics and creep rate of sandwich constructions loaded in flexure at any desired temperature is covered in a proposed method. Two proposed methods for determining the resistance to peel of the bond between metal facings and core were reviewed. This committee is planning a symposium on sandwich construction at the

Third Pacific Area National Meeting of ASTM in San Francisco for October, 1959.

West Coast report

Charles Luckman Associates (successor to Pereira & Luckman), planning-architectural-engineering firm of Los Angeles and New York, has announced three new projects: a multi-million dollar plant for Weston Hydraulics, Ltd., a subsidiary of Borg-Warner Corp.; a 20-bed hospital at Fallbrook, Calif.; and a \$570,000 men's residence unit for Occidental College. Charles Luckman Associates has been engaged in a long-range master plan for expansion of Occidental College, and recently construction was started on a \$437,000 women's residence hall, which was designed by the firm. A \$6.35 million modernization program of additions and alterations, designed by the firm for Wadsworth General Hospital in west Los Angeles, will get under way on March 1.

Victor Gruen Associates, nationwide architectural and planning firm with headquarters in Los Angeles, announces a series of new commercial projects: the \$18.5 million Maryvale Shopping City for Phoenix, Ariz.; the Palos Verdes Shopping Center for lower California to cost \$2.5 million; a \$1 million shopping center for Honolulu; the \$15 million Midtown Plaza, a downtown development for Rochester, N. Y.; and the firm has been appointed to master plan a 3,000 acre resort and residential area as well as a ten-acre shopping center for Melbourne, Australia. The Melbourne studies under the direction of Gruen partner, Edgardo Contini will be completed in 1960.

Construction was started recently on a six-story office building in Los Angeles designed by Los Angeles firm, Welton Becket & Associates, for Pacific Fidelity Life Insurance Co. An investment of approximately \$1.75 million is represented in the property and building which is scheduled for completion by the end of the year.

communications

(Continued from page 10)

our period of greatest national wealth we are making such a credo of economy that rather than producing palaces, architects sometimes lean over backwards in the name of economy and permit materials that are initially inexpensive but may become maintenance problems in a few years time. I'm sure that many communities are familiar with the process of stripping down a school to meet the demands of those to whom budget is more important than education. The result is that for the saving of a relatively small percentage of the total cost of the school, basic educational spaces are omitted (particularly those that deal with the areas of education that are concerned with the cultural and philosophical development of our children), finishes are substituted that deteriorate too rapidly and become an unending drain of maintenance funds. The most important public building the community builds today thus becomes a source of embarrassment, rather than pride.

In many of the mediocre schools that were produced in the pre-war years, there were extravagances that were so integrally involved in the building design that critics did not isolate them for separate attack. It was the architectural profession, working with educational administrators who rationalized dimensions, materials techniques, arrangements and mechanical plants and squeezed out the unnecessary. As a result of the reduction to essentials, the next attack by those opposed to any expenditures for schools was against the facilities that enriched the pupils' curriculum. The first tentative probings in the use of art are now under attack as constituting frills which can be cut off the buildings without damage. The curriculum itself is under attack when art, music and project rooms are eliminated.

This does not mean that all architects are equally successful, conscientious or talented. However there has been a wide enough establishment of economical standards to assure that school costs have advanced less proportionately than costs of any other type of building. Rather than being responsible for rising building costs, architects can claim a good part of the credit for providing more for the dollar.

Sincerely,
Richard G. Stein, AIA
Katz, Waisman,
Blumenkranz, Stein, Weber
Architects Associated
New York, N.Y.



New women's residence hall for Occidental College. Architects: Charles Luckman and Associates of Los Angeles (see West Coast Report)

Codes aid planning

On the significance of building codes in the metropolitan area from a talk by Paul M. Reid, Executive Director of Detroit Metropolitan Area Regional Planning Commission, at second annual central west regional conference held in Detroit; October 23-25, 1958.

"... Metropolitan or regional planning today, at its level, seeks much the same objectives as city planning. . . . City planning, however, operating under a single legislative body, has powers and controls that are not yet afforded metropolitan planning agencies that have no single legislative body as their reference point for authority and regulations. . . . To get its plans on the ground, the metropolitan agency must convince a multitude of local government units . . . of their value, their economy and their timeliness. . . .

"Our Commission has developed and adopted a regional land use plan. . . . (and) has made considerable progress toward the development of a regional recreational lands plan. . . .

"Where do building codes fit into this picture? They serve as basic and important tools for achieving the kind of development envisaged by our regional plan. . . .

"The joint concern for the shape and quality of the future, shared by planners and building code officials, has a reciprocal relationship. Metropolitan planning stimulates communities to make use of all instruments and tools available to shape and direct desirable community and regional growth. The establishment of building codes stimulates communities to adopt additional types of guidance and control over their growth. . . .

"It is not too much to look forward to and work for the day when through comprehensive and competent metropolitan agencies we can attain a uniform building code applying to all communities and administered by a metropolitan staff, adequate in personnel and financing to do the job. And that we can also attain the implementation of metropolitan plans through the means of a common metropolitan body that has the concern and the

power to make use of area-wide development plans. . . ."

Chaotic building codes

On chaotic building codes from an address by William B. Tabler, AIA, of New York City, to the American Institute of Architects at the annual convention held in Cleveland, July 7-11, 1958.

"... If ever a problem begged for action by the American Institute of Architects, it is the chaotic state of building codes and building regulations in most U.S. cities today. Practically every city in America has its own code governing building design and materials, and the codes vary enormously—and unpredictably—from city to city. To compound the confusion, labor unions have working rules, rigidly enforced, which are frequently irrational, and nearly always frustrating to builders and architects . . . we have created such an unholy mess of regulations, and have mixed so much antiquated nonsense in with the good, that our building efficiency has been seriously impaired. Unless we can make our building rules more uniform—and uniformly sensible—American construction is never going to realize its full potential. I am convinced that in many parts of the U.S., construction costs as much as one-third more than it should, mainly because our building codes are antiquated and anachronistic. . . .

"Consider these peculiarities in union regulations and big-city codes that I have encountered in designing hotels:

"The preferred location for a hotel ballroom is usually on the second floor. But in Hartford, Conn., the exit requirements of the building code make the roof about the only feasible place for the ballroom. In Dallas the ballroom cannot be placed above the sixth floor; in San Francisco it must go on the ground floor; and in New York City it is almost impossible to put it anywhere but underground. (New York's ballroom rule is somewhat academic, for under the present building codes and zoning laws you simply could not build a profitable convention hotel

in New York, and not one has gone up in the last 26 years.) . . .

"Obviously, satisfying all these peculiar code requirements takes a tremendous toll of time and efficiency. Let me cite just one example. The plans of the Statler Center in Los Angeles had to conform to 21 different city, county, and state codes, and more than 200 appeals for modification had to be made. And Los Angeles and California are, relatively speaking, progressive. Try to build a hotel—or any other big building—in cities or states where there are no appeal provisions.

"For sheer irrationality and induced inefficiency, of course, the rules of many construction trade unions are even worse than the provisions embedded in our building codes. It is virtually impossible to install sheet metal in New York, for example, unless it was fabricated by New York sheet metal workers. It is likewise taboo to install electrical fixtures that were not wired by New York electrical workers. . . .

"American building, with all the technical developments and mass production methods supposedly at its command, actually can use only a small portion of the available technology. Why? Because of the provincialism and isolationism of local interests. . . .

"How can we solve this problem of anarchic codes and restrictive union practices? This is no job for one architect, certainly, or even for a dedicated group of architects. It is a job for the entire architectural profession. Are we to be master builders, or are we to be pliant slave builders who will accept the tyranny of senseless codes? What we need is joint action. . . .

"What the AIA must do is clear. It must: 1) proselytize local governments to adopt and follow the national codes proposed by various national construction organizations and other groups; 2) undertake a well-organized campaign to educate the public to just how damaging restrictive union practices are. . . .

"Clearly this is a tremendous challenge. To meet it will not only require great effort but a unity of purpose rarely achieved by the architectural profession. . . ."

books

Handbook of Architectural Practice, Eighth Edition, edited by Clinton H. Cowgill, FAIA. Washington, D.C.: issued by The American Institute of Architects, 1958. Over 350 pp., \$8.00.

Reviewed by: Gillet Lefferts, Jr., AIA*

The American Institute of Architects has published its eighth edition of the "Handbook of Architectural Practice." First prepared some 40 years ago, the present edition is completely revised in both content and format.

Printed in contrasting polychromy, the Handbook is presented in two parts. The first part covers the building and architectural fields in general, office organization, and a detailed step-by-step examination of the normal procedures encountered in any given project. Part two is an Appendix printed on blue paper including all the latest copies of the Standard AIA Documents, many published for the first time.

Among the many innovations is a new Table of Contents printed on the back fly leaf. Combined with a patented "edge index," this device affords ready access to all listed sub-divisions through matching symbols printed on the page edges.

A second welcomed departure from earlier editions is a new and collated numbering system for the various subdivisions. Each division is further differentiated between sections of special interest to laymen and to architects.

The Handbook assists the practitioner in mastering those aspects of professional practice other than the creative. It serves as an important public relations document. It is a source of instruction for architectural students and architects-in-training. This newly revised edition will able serve the profession as the official voice of the Institute in all areas covered by its voluminous contents.

*Secretary, New York Chapter of the AIA.

Building technology

Materials and Methods of Architectural Construction Third Edition by Harry Parker and others. New York: John Wiley & Sons, Inc., 1958. 724 pp., illus. \$12.00

Authors stress fact that this 3rd edition is a complete revision and includes new topics as air-entrained concrete, tilt-up construction, modular bricks, light-weight plasters, shells, etc.

Drawings

Graphic Science: Engineering Drawing—Descriptive Geometry Graphic Solutions by Thomas E. French and Charles J. Vierck. New York: McGraw-Hill Book Company, Inc., 1958. 758 pp., illus. \$8.50

Huge text goes beyond conventional bounds of graphic illustration. Directed to needs of engineers, not primarily the draftsman, and contains materials on freehand work, requirements for readability of symbols and sketches. Carefully annotated with references, glossary, illustrations; provides noteworthy and impressive source.

Engineering

Control System Components by John E. Gibson and Franz B. Tuteur. New York: McGraw-Hill Book Co., Inc., 1958. 493 pp., illus. \$12.00

Graduate level presentation of engineering principles and methods of analysis related to servomechanism components. Authors have selected a number of typical components and covered them in detail.

Engineering Systems Analysis, by Robert L. Sutherland. Cam-

bridge, Mass.: Addison-Wesley Publishing Co., Inc., 1958. 223 pp., illus. \$7.50

Fluid Dynamics and Heat Transfer, by James G. Knudsen and Donald L. Katz. New York: McGraw-Hill Book Co., Inc., 1958. 576 pp., illus. \$12.50

This graduate level text covers fundamentals of fluid dynamics necessary to an understanding of convection heat transfer.

Design of Plumbing and Drainage Systems by Louis Blendermann. New York: The Industrial Press, 1959. 328 pp. \$7.00.

In 45 chapters, profusely illustrated, this book offers both a detailed guide to the young designer as well as a comprehensive reference to the unusual for the advanced designer who meets a new problem.

Handbook of Air Conditioning, Heating and Ventilating, edited by Clifford Strock. New York: The Industrial Press, 1959. 1,112 pp., 518 tables, 598 charts. \$15.00.

Comprehensive work-book on HVAC for both engineers and students. Emphasis entirely on working data, so tables and charts of engineering predominate.

Solar Radiation Air Conditioning by Ivor S. Groundwater. A.M.I. Mech. E. New York: John De Graff, Inc., 31 East 10th Street, 1957. 125 pp., illus. \$5.00

Written primarily for consulting engineer, architect, and air-conditioning engineer; deals factually with the most difficult problem in air-conditioning—

solar radiation. Methods for calculating sun load; specification of plant and particulars of the building. Meteorological data; calculations; actual performance data; bibliography: British publication but may find theoretical application to American conditions.

High Temperature Water Systems by Owen S. Lieberg. New York: The Industrial Press, 1958. 224 pp., 109 illus.

Concise and thorough explanation of principles, design, and operation of hot temperature water system.

The Solid State for Engineers, by Maurice J. Sinnott. New York: John Wiley & Sons, Inc., 1958. 522 pp., illus. \$12.50

Glass

Glass Engineering Handbook, Second Edition, by E. B. Shand. With special sections by C. H. Greene and J. A. Grant, and foreword by W. H. Armistead. New York: McGraw-Hill Book Co., Inc., 1958. 484 pp., illus. \$10.00.

films:

Testing Asphaltic Materials produced by the Asphalt Institute. Available on a loan basis or may be purchased from The Asphalt Institute, University of Maryland campus, College Park, Md. 16mm. sound, color print. Running time 36 min.

Asphalt Through the Ages produced by the Asphalt Institute. Available on a loan basis or may be purchased from The Asphalt Institute, University of Maryland campus, College Park, Md. 16 mm. sound.

Refreshingly candid in his outlook, J. Stewart Stein brings professional experience and a background of association work to his role as President of the Construction Specifications Institute.

The 50-year-old Chicago architect has played a significant role in the development of the rapidly growing CSI. The organization, of which he is its elected head, provides a clearing house of unbiased technical information on specifications of construction materials and equipment in addition to promoting the improvement of specification practice and education in construction and its allied industries.

The growth of CSI owes much to the professional "faith" of which Stein has often spoken to the membership. His policies as an officer have been to encourage the broader view in all organizational business through the exchange of expert knowledge within all ranks of memberships in the CSI. Many associate members of the CSI are based in industry.

Stein's view has been that often the experience of the CSI associates is ignored as not having technical validity. Stein contends that these associates have an enriched, practical experience that is drawn through contact with industry-sponsored research which annually runs into millions of dollars. Therefore, one singular attitude in CSI, under its president, has been to fuse theory and practice whenever possible by actively stimulating the free exchange of ideas with all sections of the professions and industry.

An architect by profession, Stein is a principal in his own Chicago firm of architects and engineers, Walter H. Sobel-J. Stewart Stein, engaging primarily in the design of commercial and industrial buildings, schools, churches and other types.

Aside from membership in eleven professional societies, including the AIA and NSPE, he has served as chairman of the Research Committee of the Chicago Chapter of the AIA, Technical Chairman to the Chicago Metropolitan and Planning Council and is a member of the Mayor of Chicago's Committee on Workingmen's Housing Problems.

What helps keep Stein in good physical condition for a pressing schedule of professional and civic organizational work is that he also finds time to be a basketball coach of various boys' groups.

J. STEWART STEIN, AIA



documents

ADHESIVES & SEALANTS IN BUILDING. *BRI, Nat'l Academy of Sciences, 2101 Constitution Avenue, Wash. 25, D.C., 1958. 160 pp., illus., paper, \$5.00.*

Complete picture of progress in use of adhesives and sealants by building industry, including papers on various types of such materials; sealing of joints in building exterior using traditional materials; sealing of metal curtain walls; adhesives for the building interior; adhesives for structural components; four papers on future uses of adhesives and sealants and reports of panel discussions.

Circle 283 for further information

FEDERAL CONSTRUCTION COUNCIL TECHNICAL REPRINTS: Available through *BRI, Nat'l Academy of Sciences*. These are reprints of *Building Research Advisory Board (BRAB)* reports as contributions to building technology:

COOLING TOWERS AND EVAPORATIVE CONDENSERS., *TR-13., 1957, 69 pp., paper, \$1.00*

Circle 284 for further information

ELECTRICAL LOAD GROWTH IN BUILDINGS., *TR-11., 1957, 48 pp., paper, \$1.00*

Circle 285 for further information

FLEXIBLE FLOOR COVERINGS., *TR-12., 1957, 23 pp., paper, \$1.00*

Circle 286 for further information

PAINTS FOR STRUCTURES., *TR-14., 1957, 30 pp., paper, \$1.00*

Circle 287 for further information

UNDERGROUND INSULATED PIPING SYSTEMS., *TR-15, 1958, 29 pp., paper, \$1.00*

Circle 288 for further information

UNDERGROUND HEAT DISTRIBUTION SYSTEMS., *TR-16, 1958, 29 pp., paper, \$1.50*

Circle 289 for further information

ARI Standard 430-58, for Remote-Type Air-Handling Units. *Washington: Air-Conditioning and Refrigeration Institute, 1958. \$.60.*

Covers four major categories: ventilating units, heating units, cooling units and cooling-heating units. Provides testing standards for different types of units and rating requirements to which they should be subjected.

Circle 290 for further information

New publications given below are available from: *American Society for Testing Materials (ASTM), 1916 Race St., Philadelphia 3, Pa.*

Non-Ferrous Metals Specifications (Except Test Methods), Electronic Materials. 1958. 1,386 pp., 251 standards. \$10.00.

First part issued of ten of the 1958 *Book of ASTM Standards*. Has detailed subject index and a list of standards in numeric sequence. To keep up to date, supplements will be issued in late 1959 and 1960.

Circle 291 for further information

ASTM Standards on Mineral Aggregates and Concrete, With Selected Highway Materials. 1958. 818 pp. \$4.75.

Various ASTM standard and tentative specifications, test methods, and definitions of terms pertaining to mineral aggregates and concrete, with selected highway materials, are brought together in this publication.

Circle 292 for further information

NEMA Standards. 1958. *National Electrical Manufacturers Assn., 155 East 44th St., New York 17, N. Y.*

NEMA STANDARDS PUBLICATION FOR DEHUMIDIFIERS, DH 1-1958. \$.20.

Circle 293 for further information

NEMA STANDARDS PUBLICATION FOR INDUSTRIAL HEATING UNITS AND DEVICES, HU 1-1958. \$.30.

Circle 294 for further information

SUMMARY OF CHARACTERISTICS OF APPARATUS INSULATORS, HV 1-1958. \$.25.

Circle 295 for further information

NEMA STANDARDS PUBLICATION FOR ELECTRIC POWER CONNECTORS, SG 1-1958. \$1.80.

Circle 296 for further information

NEMA STANDARDS PUBLICATION FOR LOW-VOLTAGE POWER CIRCUIT BREAKERS, SG 3-1958. \$3.00

Circle 297 for further information

NEMA STANDARDS PUBLICATION FOR ELECTRICAL CONNECTORS FOR COPPER CONDUCTORS, SG 14-1958. \$.20.

Circle 298 for further information

Floor or Roof Construction Consisting of Prestressed Concrete Double Tee Slabs, *R-105-58. Fort Lauderdale, Fla.: Prestressed Concrete Institute, 1958. 24 pp. \$2.00.*

Reprint of Underwriters' Lab report based on work of PCI Committee on Fire Resistance Rating with UL.

Circle 299 for further information

PCI Standards for Prestressed Concrete Plants (Tentative), *STD-103-58T, 1958. 12 pp. \$1.00.*

Sets minimum standards for precast prestressed concrete manufacturing plants. Covers materials used, plant equipment, personnel design, and central casting yard manufacturing techniques.

Circle 300 for further information

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4

A/E NEWS NUMBER FOUR:

The fourth, and every issue, of A/E NEWS reports technology, new products and professional events. Subscription free of charge to Registered Architects and Consulting Engineers (PE's). If you are a newly Registered Architect or a Consulting Engineer working in the area of buildings, and not receiving A/E NEWS, send a request on your letterhead to: A/E NEWS, 452 Fifth Ave., NYC 18.

PLASTICS: PART ONE

digest: 3

Plastics are a comparatively new material. Yearly, greater architectural applications are found for these versatile materials. A/E NEWS presents a digest of the subject in two parts: **PART ONE:** (1) definition and characteristics of commonly-employed plastics in building. (2) non-proprietary laboratory equivalents for commonly-known trade names. **PART TWO:** tables of architectural uses of plastics (to appear in the April issue of A/E NEWS). Comprehensive data on strength, permanence, electrical and mechanical properties and authoritative engineering information exist in this field. Our reference sources were: ASTM Standards on Plastics (1958), ASTM, Philadelphia, Pa.; Architectural Plastics Corp., Eugene, Oregon.

DEFINITION

Plastics are materials whose chief component is an organic substance of large molecular weight—capable of being shaped or molded by extrusion or casting to assume a more or less rigid form.

COMPOSITION OF PLASTICS

1. Resin base or binder: a cementitious constituent for all plastics.
2. Filler: inert materials of glass fibers, flock or wood flour. Often added to binder to modify properties or for color.
3. Plasticizer: used to increase or create plastic flow.
4. Colorant: pigmentation added for color effect.
5. Stabilizer: chemicals added to binder to create stability and increase durability and longevity. Stabilizers are essential to vinyl chloride compounds.

CLASSIFICATIONS OF PLASTICS

Two main groups: (1) the thermoplastics or those that can be reshaped by heating and (2) thermosetting plastics which cannot be reshaped. Other categories in this digest are the fibrous glass reinforced plastics, laminates, films and expanded (foamed) plastics.

THERMOPLASTICS

1. Acrylics:
Advantages: crystal clear, lightweight, good impact strength, good aging and weathering resistance; rigidity.
Disadvantages: tendency to cold flow; softening point of 170° to 220° F; low scratch resistance.
2. Cellulose acetate butyrate:
Advantages: excellent molding properties; high impact strength, toughness and dimensional stability.
Disadvantages: exterior use; poor for weathering.
3. Modified polystyrene:
Advantages: complete water resistance; resistance to chemical and solvent attack; higher impact strength.
Disadvantages: poor outdoor exposure and temperature limitations.
4. Polyethylene:
Advantages: flexible as thin film, and rigid in thick sections. Inert to many solvents and corrosive chemical low moisture permeability; dimensionally stable at normal temperatures; will not support fungal growth.
Disadvantages: low strength properties.

5. Polyesterene:

Advantages: excellent moldability; dimensional stability; high strength properties; good temperature and humidity resistance; negligible water absorption; low cost; good acoustical and insulation character.

Disadvantages: brittleness, softening at 190° F affected by solvents; poor weathering.

6. Rigid polyvinyl chloride:

Advantages: good weathering resistance; will not support combustion; good resistance to most acids; alcohols, organic solvents; high flexural strength; excellent toughness and ductility; high impact strength.

Disadvantages: difficult to mold; subject to flow at 140° to 180° F.

7. Vinyl chloride:

Advantages: good tensile strength; good acid, solvent, caustic resistance, low water absorption.
Disadvantages: low softening point, reacts to ultra-violet light, requires plasticizers.

THERMOSETTING PLASTICS AND RESINS

Phenolic and polyester resins are in this group but are discussed under laminates.

1. Epoxy resins:

Advantages: excellent chemical resistance, excellent adhesion. These resins are converted to hard infusible polymers by proper curing agents. Used as poured floor compounds among other applications. Very little shrinking.

Disadvantages: poor heat resistance compared to polyesters and phenolics.

2. Polyester resins:

Advantages: high strength in glass reinforced laminates; excellent electrical properties; good heat resistance; good chemical resistance; good weathering and low temperature properties.

Disadvantages: fair adhesion; excessive shrinking (4 per cent-8 per cent) on molding.

3. Silicones:

Advantages: high heat resistance; do not support combustion; low water absorption.

Disadvantages: depending on use or application; for molding requires special techniques.

REINFORCED (FRP) AND LAMINATE PLASTICS

- A. **LAMINATION:** layers or plies of various materials, such as cloth, paper, glass fibers, and wood are impregnated with uncured resin and laid together. Laminating may be utilized for all

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thermosetting plastics.

1. Melamine laminates:

Advantages: have wide color range; hard abrasion resistant resin; flame and low temperature resistance.

Disadvantages: cost factor; dimensional instability with varying humidities.

2. Phenolic resins:

Advantages: low water absorption, low thermal conductivity; insensitive to temperature.

Disadvantages: none given.

B. **FIBROUS GLASS REINFORCED PLASTICS:** related to laminates of paper, cotton or asbestos fabrics and of plastics reinforced with fibers of these materials or shredded fabrics.

Advantages: impact resistance, moisture and chemical reagent resistance; low moisture absorption; many uses in building materials.

Disadvantages: glass reinforcement is attacked by strong alkalis and some acids.

FILMS

A great many types are commercially available. Some commonly used types are:

1. Polyester film or Mylar (R):

Advantages: tough, durable, high tensile strength. Can be used in thin gauges. High chemical, solvent and acid resistance.

Disadvantages: relatively new film.

2. Vinylidene chloride copolymer film or Saran (R):

Advantages: high transparency, low water vapor transmission; high chemical resistance; self-extinguishing when lit; one use is protection of underground piping from corrosion.

Disadvantages: must not be used where surface must "breathe"; not used below zero degrees F temperature—becomes brittle.

3. Styrene and modified styrene film:

Advantages: low water absorption; dimensional stability; excellent electrical insulation properties. Modified type not as suitable for exterior use.

Disadvantages: should not be used in contact with petroleum or other hydrocarbon solvents.

4. Vinyl (covers broad group of polymers):

Advantages: waterproof, good resistance to tear and elongation; excellent abrasion resistance and flexural life. Resistant to oils, greases, alkalis, most acids and chemicals and many solvents.

Disadvantages: not suitable for application which require high resistance to weather or flexibility in low temperatures.

EXPANDED (FOAMED) PLASTICS

Their structure is in the form of either unit cells or interconnected cells.

1. Cellular cellulose acetate:

Used in sandwich laminates and as thermal insulation; generally extruded forms.

2. Expanded polystyrene:

Widely used for low temperature insulation base, and insulation plastic base in masonry construction; where used as pipe covering, useful as preventing condensate; use limited by flammability and poor resistance to solvents.

3. Expanded polyvinyl chloride:

Resistant to air, sunlight, greases, etc. Open cell type use in upholstery; closed-cell type does not breathe and has good insulation properties.

4. Isocyanate foams:

Foamed-in-place; high heat resistance and low water absorption and good insulating properties.

5. Phenolic foams:

Fillers for honeycomb construction, acoustic and sound deadening material, thermal insulation.

NON-PROPRIETARY CLASSIFICATION

Commonly-known trade names are given under each generic listing. The information is not-all inclusive but serves as a general reference guide.

1. Acrylic resins and sheets:

ACRILEX, ACRYVIN, GLACITE, LUCITE, LUSTRELITE, PLEXIGLAS, REFLEXITE

2. Calendered vinyl, film, sheeting and coated fabrics, covers broad group of polymers:

BOLTAFLUX, BURLAM, FABRILITE, GOODALLITE, KALISTRON, KREEN, LUXON, NAUCAHYDE, PLASTI-CLEAR, PLASTIKAF, PRESTOFLEX, REET, RUCOAM, SPAULDITE, SULLYVYNE, SURFLEX, SYNTHANE, VINYLFILM

3. Epoxy casting, laminate, adhesive resins:

ARALDITE, EPON

4. Expanded polystyrene:

STYROFOAM

5. Fibrous glass reinforcement:

FIBERGLAS, GLASSFLOSS, VITRON

6. Glass fibers and polyester reinforced plastics in corrugated/flat sheets:

ALSYNITE, CORRULUX, PARLITE, PLEXTON, SYNFLAKE

7. Isocyanate foams:

ARMOFOAM, LOCKFOAM

8. Laminate-glass fiber/polyester (honey-comb core materials):

ARAMDALL, ARMORFAB, ARMORLITE, GLASCHOP, GLASSWELD, INSANGLAS, VALINITE

9. Laminates-high-pressure types: decorative, utilizing phenolics and melamines:

CONSOWELD, CONOLITE, DECARLITE, DURAWOOD, FIBERESIN, FORMICA, HASKELITE, INSUROK, LAMITEX, MICARTA, ORNALITE, PANELYTE, PARKWOOD, PERMAPANEL, PHENOFIBER, PHENOLITE, PIONITE, PREGWOOD, RAILITE, RAIPLEX, RESILYTE, RESINPLATE, RICHWOOD, TEXTOLITE.

10. Phenolic, styrene and polyethylene resins, sheeting, and molding materials:

ALATHON, ACRO-LITE, BAKELITE, CATALIN, CELANESE POLYETHYLENE, DUREZ, DURITE, GE.

11. Polyamide resins:

NYLON

12. Polyethylene film:

DURA-CLEAR, ETHYLON, PLICLOSE, POLYFILM, POLYTONE, PRESTOFLEX, TRALON, VISQUEEN.

13. Polyester resins:

ATLAC, BIO-PLASTIC, CHEMIGLAS, CLEARCAST, LAMINAL, MARCO-RESINS, MR-RESINS, PARAPLEX, SELECTRON.

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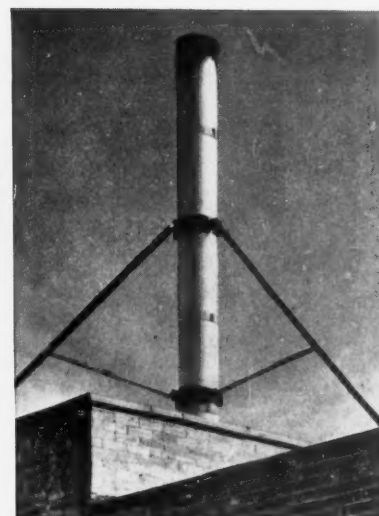
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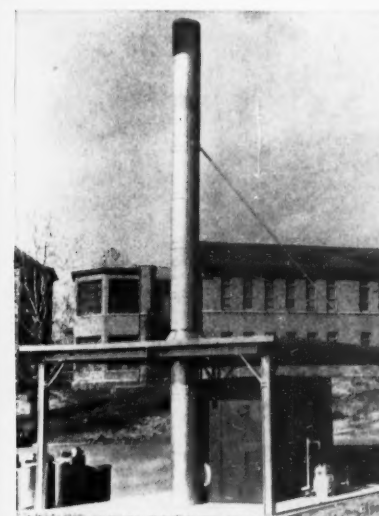
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calendar

- MARCH 13-14** AMERICAN INST OF ARCHITECTS: Atlantic regional meeting, White Sulphur Springs, W. Va.
- 16-17** ENGINEERING: THE WORK OF PIER LUIGI NERVI: Exhibition with talk March 26 by Dean Burchard, Sch of Humanities, MIT. Architectural League, NYC.
- 26-27** SOC OF PLASTICS INDUSTRY: 16th Pacific coast section conference, Hotel Del Coronado, Coronado, Calif.
- APRIL 2** ARCHITECTURAL SCALE AND ARTS: talk by Paul Rudolph, AIA, chairman, department of architecture, Yale University, Architectural League, NYC.
- 6-8** BUILDING RESEARCH INST: 8th annual meeting, Penn-Sheraton Hotel, Pittsburgh, Pa.
- 9-10** ILLUMINATING ENGR SOC: east central regional meeting, Lord Baltimore Hotel, Baltimore, Md.
- 19-23** AMERICAN SOC OF MECHANICAL ENGRS: oil and gas power conference and exhibit, Shamrock Hilton, Houston, Tex.
- 23-24** ILLUMINATING ENGR SOC: south central and southeastern regional meeting, Asheville, N. C.
- 29-3** AMERICAN SOCIETY OF MECHANICAL ENGRS: metals engineering conference, Sheraton-Ten-Eyck, Albany, N. Y.
- MAY 4-5** ILLUMINATING ENGINEERING SOCIETY, southwestern regional meeting, Shamrock-Hilton Hotel, Houston, Tex.
- 4-6** CONSTRUCTION SPECS INST: national convention, Palmer House, Chicago.
- 6-8** ILLUMINATING ENGR SOC: midwestern regional meeting, Pere Marquette Hotel, Peoria, Ill.
- 11-12** ILLUMINATING ENGR SOC: inter-mountain regional meeting, Continental Hotel, Denver, Colo.
- 25-28** DESIGN ENGINEERING SHOW: and fourth annual design engineering conference, Convention Hall, Philadelphia, Pa.
- 26-30** ILLUMINATING ENGR SOC: Pacific northwest regional meeting, Banff Springs hotel, Banff, Alta.



Van-Packer Stack, made up of Standard Sections, handles boilers and furnaces.



With Hi-Temp Sections, stack handles incinerator flue temperatures to 2000° F.

Prefabricated refractory stack goes up in a day, outlasts steel by 3 times

Van-Packer Industrial Stacks are comparable in cost with steel stacks, yet average three times greater life because they are made of special refractory material that won't corrode. The stack is available with Standard Sections for boilers and furnaces, or with Hi-Temp Sections for incinerators.

Van-Packer Stack sections are cast in three-foot lengths for easy installation. Sections have corrosion-resistant metal jacket which eliminates maintenance.

Eight diameters, from 10-inch ID to 36-inch ID are available. Sections are cemented one atop another with high temperature acidproof cement, then secured with draw-up type bands.

Van-Packer Stacks are available through local Van-Packer Jobbers and Special Representatives. See "Smoke Stacks" or "Chimneys—Prefabricated" in the yellow pages of your classified telephone directory for the name of your nearest Van-Packer distributor.

Write for Bulletin IS-32-63.

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an exciting new use for magnificent marble

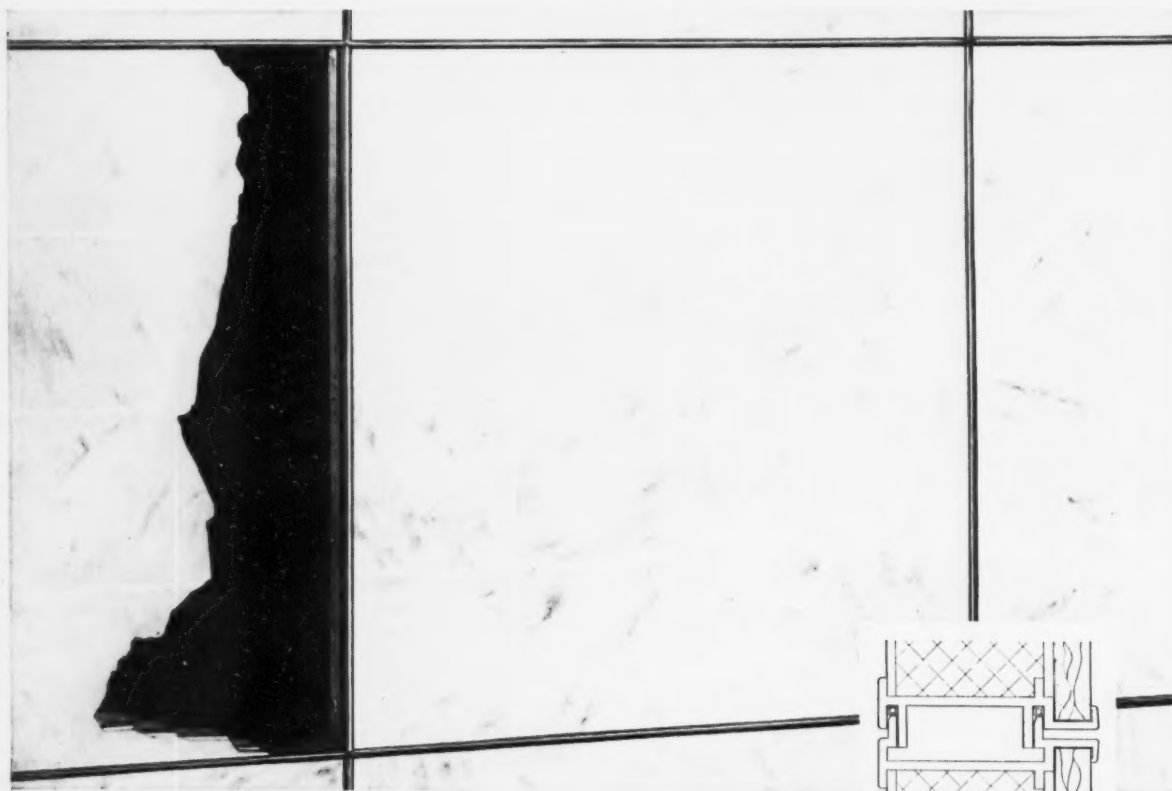
VERMARCO MARBLE PANEL-WALLS

VERMARCO PANEL-WALL units are low cost, preassembled, encased in extruded aluminum frames. The wall is composed of a layer of half-inch thick marble, bonded to a core of insulation, with interior face of asbestos-cement board.

The marble (exterior face) has improved exterior finish to enhance color and withstand weathering. The asbestos-cement board (interior face) may be painted or covered with a variety of other materials to produce attractive interiors.

Panels, when joined, are automatically weather and moisture sealed by means of a tongue and groove system with built-in vinyl weatherstop and expansion seal that *eliminates the need for additional framing or caulking.*

VERMARCO PANEL-WALLS are adaptable to a variety of curtain wall systems. They are available in three types: *Series 100—Flush-Mount Panel; Series 200—Grid-Wall Panel; Series 300—Window-Wall Panel.*



Complete information with specification details and costs available now. Write:

Flush-Mount Panel Detail

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